

AMERICAN CINEMATOGRAPHER

FOR AMATEUR AND PROFESSIONAL PHOTOGRAPHERS

October
1939
25c

—Size 5

Hollywood by
an Society of
cinematographers

the Movies Need
Sound

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Movies

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AMERICAN CINEMATOGRAPHER

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Front Cover

IN THIS shot of the camera boom and cell there from the Warner Brothers "City of Lost Men" are seen, leaning on prison rail at left (left to right), Actors Burgess Meredith, John Garfield, Guinn "Big Boy" Williams and Ed Pawley. On the camera boom are (left to right) Tom Branagan, Arthur Edson, A.S.C., and Roy Noble. Directly under camera platform are Director Aristotle Loveak and Chuck Hansen, assistant director. Garfield and Ann Sheridan co-star in "City of Lost Men." Camera crew watch the scene with interest.

Photo by Longworth



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HOW MOVING PICTURES ARE MOVED BY STILLS

By George Blaisdell

"MOVING PICTURES made this industry, but still pictures have kept it alive."

If true several years ago, when spoken by a pioneer showman, the words have more weight today.

Let's briefly review a few facts. It is Hollywood's business to make pictures. Then comes the job of selling them—trying to sell them would be more precise, for the day has passed when exhibitors had only to open their doors, then get out of the way to avoid the rush.

Movies have lost their initial novelty. An enticing younger wealth, radio, offers her charms free. Newspapers and magazines, quickening to new tempos, use

more features, lavishly illustrated—entertainment. A host of seeming non-competitors, like the week-end service station man, take a larger slice of the diminishing amusement dollar.

Seeing Is Desiring

To offset these facts, Hollywood is turning out better pictures than ever before. And to market those pictures it is relying on showmanlike publicity, with the latter's good, hard-hitting right arm being art—stills that sell.

Seeing is still believing to most people. It is also desiring, the way Hollywood publicity art functions today.

How better, for example, arouse interest in a new glamor girl about to start a picture than flash her smile from a dozen magazine covers at once?

How better stir the senses, while the picture is in production, than maintain her seductiveness in layouts, portrait studies and arresting strip ideas in a thousand publications?

Every Move Planned

And, when her picture nears the zero hour of local release, how better whip interest to the buying point than by taking advantage of reminder value and letting her likeness caress the eye in posters, newspaper ads and lobby frames, all saying, "Here she is! Come and get it!"

Publicity art is a complex collective

George Brown, director of publicity, Columbia film studios (left).

A. L. "Whitey" Schafer, portrait photographer, Columbia film studios.

word. It means, briefly, many pictures in many places. And always for a specific reason, because, if the shot doesn't fit into a definite sales plan, its shutter should never have clicked.

Art today is conceived well in advance and as a unit of the general sales campaign. Long behind is the day when a harassed stillman tagged after the filming troupe, grabbed a few production shots when he could, then considered the picture covered.

To illustrate current Hollywood technique, it will be simplest to take one studio in relation to one picture. Consider, then, Columbia and "Mr. Smith Goes to Washington," the latest Frank Capra production. George Brown heads the publicity department at Columbia and supervises all art. A. L. "Whitey" Schafer is in charge of the still department, and Irving Lippman was the still photographer assigned to the picture.

For a better understanding of their joint task it is necessary to scan the scope of the Capra comedy drama.

"Mr. Smith Goes to Washington" is easily the director's most pretentious production. The story rambles from a colorful small town to the nation's capital and utilizes forty-three distinct settings en route.

168 Speaking Parts

Speaking roles total 168, a near record-breaking number. Because not all of the picture was made at the Gower Street studio the still department often was compelled to function far from its base. The company was constantly on the move, to the studio's Melrose Avenue annex or the ranch in Burbank, or to difficult location sites in Los Angeles' downtown streets.

Another factor was the number of important players; so many more people had, photographically, to be given "the works." "Mr. Smith Goes to Washington" co-stars Jean Arthur and James Stewart, and the number of supporting





players, truly "too numerous to mention," includes Edward Arnold, Thomas Mitchell, Claude Rains, Guy Kibbee, Ruth Donnelly, Eugene Pallette, Beulah Bondi, Harry Carey, Astrid Allwyn, H. B. Warner, Porter Hall and Grant Mitchell.

Columbia's publicity department went to work before the mimeograph ink had fully dried on the script. This was several weeks before shooting started.

First, as he always does with important productions, George Brown read the script. Columbia's publicity director is a veteran in the sales, advertising and exploitation fields as well, and he read analytically seeking points of attack.

Drafting Stills

Going along, he indicated how production scenes were to be covered, and in the margins noted ideas for strips, layouts, exploitation shots and such.

This preliminary attack required several days. When he finished the script he gave as much copy on its margins as in the body of the text.

Next, Brown went into conference with Schafer, who would have to realize the former's plans in celluloid. The two went over all aspects of the undertaking before then, then drafted an outline of all stills to be taken. Art

One of the great casts in motion picture history enacts Frank Capra's "Mr. Smith Goes to Washington," a Columbia comedy-drama, with Jean Arthur and James Stewart costarring in the romantic leads. Here are, left to right, Harry Carey, Astrid Allwyn, Beulah Bondi, Eugene Pallette, Thomas Mitchell, Claude Rains, James Stewart, Frank Capra, Jean Arthur, Edward Arnold, Guy Kibbee, Ruth Donnelly, Grant Mitchell, Porter Hall and H. B. Warner. Composite Photo by A. L. Schafer.

for "Mr. Smith Goes to Washington" came under the following classification:

Seven Departments

STRAIGHT PORTRAITS—Singles, doubles and groups of leading players.

CHARACTER PORTRAITS—The same, but as the players appear in the picture.

ADVERTISING—Character plus action shots slightly broader in feeling than the character portraits so that they will be usable for poster and other outdoor advertising.

FASHION—Feminine players in styles sure to be in vogue many months hence; some sittings in color.

EXPLOITATION—Pie-up art in which players pose with nationally advertised merchandise.

PRODUCTION—Actual scenes from the picture taken during the period of filming.

PUBLICITY—Including art sometimes called informal and offstage; strips, layouts, "gag" ideas, seasonal stories, montages, etc., intended for newspapers, magazines, news syndicates, wire services and other recognized outlets.

Getting the Jump

Glance again at the foregoing classification, and remember that much of the art for "Mr. Smith Goes to Washington" was taken in the order of listing. A new working principle reveals itself.

Columbia endeavors to take the bulk of its portrait, advertising and exploitation art before a picture ever starts.

Thus, when set cameras start to turn the first photographer can concentrate on production stills and timely publicity art. And a wealth of photographic material being already available, layout men and artists can get a flying start on the pressbook, posters and exhibitor accessories.

The several hundred stills comprising the comprehensive key set for "Mr. Smith Goes to Washington" divide fairly evenly



between gallery work and set shots. As explained, the former came first.

Brown and Schafer, working in close collaboration, arranged sittings as rapidly as players were signed. Schafer personally did the gallery photography, using the finest of specialized equipment, some of which he helped develop and perfect in the course of his long Hollywood career.

Ultramodern Gallery

Columbia's gallery, located in the stars' dressing room building, is ultramodern in equipment. The camera is an Agfa Anasco of the portrait type, fitted with adjustable standards which permit operation from floor level to a height of nine feet.

Two lens may be used, a 20-inch Cook f4.5 and a 16-inch Helier f8.8. The shutter of the Helier can be synchronized with a flash gun, thus making it possible to shoot fast-moving action under portrait conditions.

A noteworthy feature is the lighting equipment, all of Saltzman manufacture.

The 1600-watt keylight is a marvel of flexibility. It is suspended microphone-fashion on the end of a boom and supported by a counterbalanced stand-

James Stewart (being carried by sceneries in foreground) and players in a scene from Columbia's "Mr. Smith Goes to Washington." Photo by Irving Lippman.

and. The base of the standard, when rolled next to the camera, permits easy, one-handed operation of the keylight.

Because it is of the pre-focused type, the lamp in the keylight does not project the image of its element.

An overhead spotlight and a floodlight, each of 1000 watts, complement the keylight and are sufficient for most gallery work. The floodlight is mounted like the keylight, on the end of an adjustable boom. Further, it is fitted with a spun-glass diffuser, considered far superior to the ordinary screen.

Another interesting feature of the gallery is its overhead massed system. The rail is supported from the ceiling at a height of eighteen feet. Lamps can be hooked to the track and moved anywhere at will.

Kodachrome in Stills

Considerable color photography figures in the excellent art campaign developed for "Mr. Smith Goes to Washington," and all this work was done in

Kodachrome. The resulting transparencies are sent in that form to magazines that prefer to make their own separations, otherwise the breakdown is made by the studio.

Irving Lippman, the unit still man, used three cameras in his daily work on the sets. His standby, of course, was the familiar 8x10 Agfa Anasco view camera, in this case equipped with a 12-inch Goerz Dagor f6.8 lens.

For all news, syndicate and action set Lippman employed a 4x5 Speed Graphic with synchronous flash. To supply all the current outlets for candid camera photography he took hundreds of Leica shots, the camera using 35mm motion picture film.

All of Columbia's Leica photography is worth noting, is done with short ends of regular motion picture stock.

"Outstanding" severely does justice to "Mr. Smith Goes to Washington," the production, unquestionably Capra's greatest screen achievement, and the same might be said of the art campaign which was created with the sole aim of selling the picture. One moves, the other stands still. But both go forward to set new precedents in how movies can be made, then thoroughly sold.

FORMING COOPERATIVE AMATEUR PRODUCTION UNITS

By BILL SEINEKE, JR.,

WHILE it is true that for some time amateur cinematographers have banded together for the purpose of jointly producing scenario pictures, such organizations have been the exception rather than the rule. A reliable source informs us that the practice of working in crews has been widespread in England than in the United States.

This information is rather surprising, as Americans have come to be characterized as excellent organizers. But if American amateurs are tardy in their recognition of the relatively vast number of opportunities offered by cooperative production, then it is our hope to add impetus to the movement in this country.

We propose to do so by recommending several basic principles for the organization of amateur production units. The recommendations are based upon experience in the field, experience which has shown pitfalls to be sidestepped which can otherwise mount into imposing and unnecessary costs.

Most often heard is the lament: "But I can't get next to anyone who will do it!" Do what? Write, act, direct. Attend to the innumerable details essential to the very beginning of the production of a scenario picture.

The Man Who's Looking For

Advanced amateurs, satiated with the sort of thing they have done for years, are as voracious in their complaints as the beginner who wants to plunge squarely into dramatic production.

The cinematographer with whom we have gained something of an insight into the intricacies of ambitious filmmaking said when we had completed our short: "I've been looking for someone like you for years."

He meant that he was tickled to death to find people who would share his enthusiasm for cinematography, and (most important) who would string along with him until the finished production was stamped with their joint approval.

We were equally thankful to find a man who echoed our own ambition to stage good drama convincingly and entertainingly. We said "stage" because previous to joining forces with him, our avocational medium had been the amateur theater, a world of cues and props and footlights.

Since our meeting, a whole panorama of fascinating projects has been revealed to us both. He concedes our ability to manufacture and render story and histrionics.

We recognize that he is an above average technician, among the top-notchers in amateur cinematography. Our association has been productive and more than satisfactory to date.

Strong on Alibis

Astonishing to us was this man's statement that he had been unable to find needed amateurs from other fields who would string along with him.

And as if to demonstrate that the condition is epidemic among cinematographers, we are hearing the cry repeated almost verbatim by members of our expanding circle of cinema-minded acquaintances.

We can arrive at only one conclusion. The average cinematographer must be unaware of the potentialities within his reach. He must be oblivious to the indisputable fact that somewhere near him are those individuals who would welcome the opportunities to write, direct and act in amateur motion pictures.

Why, such people even organize into groups for the betterment of their respective amateur skills!

Probing deeper, we think we have found the reason. Let us state it unblushingly and then proceed to the remedy.

When he casts about among his friends for cooperation, the amateur movie bug gets responses like these: "I can't act." "I take a terrible picture; it ages me." "Can't give up my Sunday golf." "I'm tied down (married)."

All perfectly valid alibis, some of which can be gotten around. But instead of showing the hopeful camera addict that he is up the wrong alley, they usually cause him to become discouraged.

Eventually he gives up the idea of doing a scenario picture at all, takes pictures of his friend's Sunday golf and of the others when they aren't looking.

Scenario Film

Occasionally his friends indulge him when. The picture is made in good-natured, slumped fashion, and the result is pretty awful.

Now we have summed up the situation as it painfully presents itself. We believe you will agree it is a fairly accurate picture of most amateurs. Let's turn to the first step in the making of your scenario film.

Being the first, the acquisition of a writer is probably the most difficult hurdle. Once you have him, he will aid you in the selection of a story, your second hurdle. Together, then, you can much more easily round out the personnel of your company, which will be your third.

The writer should be, among other things, a dramatist. So, if you are in a position to exercise a preference, choose one whose forte is playwriting. Getting that type of person is your task, but we suggest that you may find him in the employ of a newspaper or attending a night school class in creative writing.

Of course, it's possible that he may be, vocationally, a cement finisher or the floor manager in a women's apparel shop. But, surely, one of your friends has a friend who has a friend who can write.

Don't balk at the length of time you may have to spend to locate this man. What he can do for you will be worth it.

Stage and Screen

If you are very lucky, your writer will possess a knowledge of certain fundamentals of camera technique. If you are wise, and he is not educated in this respect, you will see to it that he acquires that knowledge.

You will show him how much greater is the scope of the camera than that of the stage. In return he will remind you of restrictions imposed because of the necessity to use written subtitles in lieu of spoken dialog.

Attend movies together. Later discuss them thoroughly. Absorb what you both can of the technique of dramatizing story material for the screen.

Assuming that your writer is a dramatist and can translate what he has written into convincing dramatic action, by all means make him the director of your company. If he has written plays, he has probably taken part in them. Their mechanics are as clear to him as the function of your camera to you.

(Continued on Page 478)

John Grierson: Maker of Documentaries

HOLLYWOOD has been visited during a part of September by a man in whom it has manifested a lively interest, an interest in what he has accomplished and in what is felt he will accomplish in the years to come. For he is a young man yet, with plenty of time ahead.

John Grierson is on his way to Australia and New Zealand, on the invitation of the governments of both countries. That is, he was invited and will accept the invitation unless he gets a message to return to England for some work in connection with the war.

He has been invited to make a survey for the Government of the island content as to the use of films in connection with department service and as a national basis to bring news of one part of the country to other parts and to project themes of common interest to all parts of the country. Carrying the country alive to other countries is also an important function of the documentary film.

This is in line with the spirit manifested in the Government of Britain and in the Dominion Governments throughout the Empire, such as Canada, South Africa and New Zealand, to widen the influence of films.

Canada took the lead last year by coordinating activities under a national film board and appropriating a sum of money for national films distinct from department films. Other Governments did likewise.

Many Activities

Grierson was active in building up the English documentary film school, as well as the Empire Library, E. M. E. film unit and then the G. P. O. unit. He also created the service for road showing.

Between five and six hundred documentary films have been produced during the past ten years. It is true some were made earlier, like "Nanook of the North" in 1920, only at that time we did not know it was a documentary. We knew it was different. For example, it had no love-making in it and yet it was box office. Omitting that was a matter that was anathema to the theatre. It

was enough of an upset in the theatrical world to start every one asking as to the identity of Robert Flaherty.

When the producer was asked as to those of his productions which he considered the more important, those which possibly had a greater influence on the growth of the Documentary, he said he believed these to be representative:

"Drifters," made in 1929, a film of the North Sea herring fleet; "Industrial Britain," 1933, film of the craftsmanship of the Industrial Midlands; "Weather Forecast," 1934, collecting and dissemination of news relating to weather conditions; "Night Mail," 1935, typical of modern organization, the nightly journey of the postal special from London to Scotland.

"Housing Problems," 1935; "Children at School," 1937, surveys of the English educational system, and "The Londoners," 1938, film to celebrate the jubilee of the London County Council, with sequence of historical reconstructions and contemporary activities—the three under the general heading of social problems.

As to the number of films in which Grierson has had a finger—as producer or director or been in some manner associated—the figure easily is well over three hundred. They are of the widest imaginable variety.

"Uncharted Waters," produced in 1933 by Grierson, was a filming of the initial stages of a survey of the Labrador coast by the Admiralty survey ship Challenger. "Coal Face," produced in 1934, was an impressionistic survey of Britain's coal industry.

"We Live in Two Worlds," 1937, was a film of national and international communications, with a special reference to the telephone. In 1934 Grierson produced "Aero-Engine," a film of the technical processes of the manufacture and testing of aeroplane engines, with a final reel of their behavior in the air.

Range of Character

"B.B.C.: The Voice of Britain" Grierson produced to show the organization and social applications underlying national radio in Britain. "Lancashire at Work and Play," which Grierson pro-

duced in 1933, was a survey of Lancashire's industrial development over the last hundred years due to the power of steam, coal and electricity.

Taken from a large number of films, these illustrate the range and character of the films that have been in the Grierson list. No wonder that in an informal talk made on the evening of September 9 at Bell & Howell Auditorium to a group of teachers the visitor said: "Primarily I am an educationist."

Perhaps no better definition of the meaning of the documentary film can be ascribed to the man who has made so many of these than to quote from his preface to Paul Rotha's book of "Documentary Film".

"The documentary film has always seemed to enjoy an importance beyond itself. This importance is best explained by relating the documentary film to the needs of our time. Some documentary practitioners have adopted it for the simple and good reason that it gave them a chance to play with certain intrinsic powers in the medium.

"Others have seen in it an opportunity to make contact with the living materials of the contemporary scene and to do so on the most honest terms possible in the cinema world. But the drive for documentary films has a deeper bearing still. There was a time when we said that the special virtue of the documentary film lay in its capacity to 'cross gaps.'

"We meant the gap between the citizen and the community; in more specific terms, such gaps as existed between the schoolroom and the community, the research station and the farmer, the modern organization and its members, or the modern organization and the people it served. Like many, we were conscious of a sense of failure: the failure to 'comprehend' the fast moving, ever more complex, forces of modern society.

Change in Principles

"We had a sense that the principles of education had to be changed to meet an urgent need that new instruments of comprehension had to be developed. We posited the idea that these instruments had necessarily to be drastic instruments, for the academic and rational measures were, of their nature, failing to catch the scope and bearing of the corporate and vital forces moving in our midst.

"In the documentary use of the radio and the film we saw new ways of educating public opinion in a democracy. They were dramatic and popular media. They had within them the magical powers of comprehension we sought.

"They were capable of establishing a continuing living contact between the individual and the vast drama of planet forces in which he too inconspicuously wandered. We conceived of a new educational system which would comple-

ment the pedagogic services of the schools and give people a sense of their citizenship."

Mr. Grierson declared the cumulative circulation of the documentaries was great. He added that the good documentaries made top money in the best theatres and made the widest appeal among those audiences more fortunate in the way of education.

"A non-theatrical subject is not necessarily a step-child. Far from it," he declared.

Since the inception of the British Cinematographic act the producer has been one of the two producer members of the film council which administers the act, and incidentally controls the industry in respect of the act.

During his short stay in Hollywood Mr. Grierson was asked to address members of the Academy at its theatre in Garden street—it proved to be a full house which refused to go home until 11:30 o'clock—as well as the meeting at Bell & Howell's previously referred to.

duce, finer grain, possesses truer color rendition and, since single-coated film is a more desirable type of stock to make than double-coated film, from a manufacturer's viewpoint prints on single-coated film are much clearer than on the old double-coated film.

Thus Cinecolor is proud to announce these facts to the trade. Another vital point is that double-coated prints have always been somewhat of a bignoon to the theatre projectionists. Change of focus over black and white is necessary and often must be made by scraping the emulsion from opposite sides of the two pieces of film to be joined.

Because the film has an emulsion on each side of the base, the prints are more susceptible to scratches than regular film. All of these objections are automatically eliminated by Cinecolor's new product which, as far as projection considerations are concerned, is handled precisely as regular black and white film.

With regard to 16mm. Cinecolor recognized the demand for this type of film as far back as 1933, when the company was formed. For several months tests were made, but the growing commitments on 35mm. necessitated a slowing down of the 16mm. work, until it was finally necessary to stop work entirely in favor of standard film.

Builds Own Printers

Cinecolor's new plant was designed with ample space being allotted for the printing and processing of the 16mm. type. Considerable thought had to be given to the type of machines to be used and, after an exhaustive survey of all possible equipment available on the market, Cinecolor finally decided to construct its own printers and processing machines.

As an example of the care taken in the production of the various individual machines, one year's time was occupied in the designing and building of the equipment.

All 16mm. film must be on acetate or safety base and, since this type of film becomes extremely brittle when submitted to liquids, care had to be exercised in the design of the processing machines to overcome stretching, shrinking, and warping, which is an inherent weakness of safety stock.

Considerable thought also was given to sound. Very often 16mm. sound is vastly inferior to the original from which it is made. Cinecolor's engineers have developed a new type of positive sound track which is entirely new and novel and indications are that it will reproduce sound equal to the same track made on 35mm., providing, of course, that the sound head through which it is perfected is in first class condition.

By the system which Cinecolor employs the cost of prints is reduced to a price which is the lowest in the history of color 16mm. prints.

CINECOLOR MAKES CONTRIBUTION TO COLOR

By W. T. CRESPIEL

I N line with its policy of conservatism, Cinecolor has withstood desires to announce its two new products to the trade until exhaustive tests proved beyond doubt that actual production of these innovations could proceed on regular production schedule.

For over four years Cinecolor's research engineers, under the guidance of Alan Gundelfinger, technical director, have worked on the elusive problem of producing color prints in a single layer of emulsion, thus giving to the trade a film having the same characteristics as regular black and white, but in natural color.

A second development, now perfected, is the production of 16mm. prints in color and sound at a price that has met with such response that this department will need to work sixteen hours a day to even begin to accommodate the commitments continually being presented to the company.

Must Be Commercial

Reviewing the single-coated process, we are forced to look back over the art for a period of almost thirty years, where we find that attempts to accomplish this same result became the problem of color workers, patents having been granted to many inventors, such as C. P. Christensen, F. W. Kent, T. P. Middleton, F. W. Dunleavy, W. F. Fox, F. E. Ives, W. V. D. Keller, and on.

Since this type of film existed only sporadically on the market, it is ob-

vious that the various methods employed were lacking in the fundamentals that might have spelled success. W. V. D. Keller possibly progressed further than any other inventor, since he actually processed a quantity of color film in his laboratory in New Jersey, about fifteen years ago.

However, a study of the methods suggested by these color-experimenters indicates that their various systems were not fundamentally sound, results uncertain, and cost, when viewed from a strictly commercial viewpoint, beyond that of good business practice.

Thus Cinecolor's problem was to produce a product fundamentally sound from a processing viewpoint and, at the same time, to consider the all-important question of possible reduced cost, so that our customers would derive a twofold benefit.

As we have mentioned, serious experiments were started about four years ago. In the intervening period, at least ten different ideas have been experimented with, each one carried out to the ultimate, until the attempts narrowed down to one method, which method is now in operation at Cinecolor's Burbank plant, the methods employed being protected by patents and patent applications, both in this country and abroad.

New Product Superior

Results have proved that this new product is superior in quality to the old double-coated film, cheaper to pro-

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NOTE ON BUILDING NOVEL PROJECTION STAND

By WILLIAM STULL, A.S.C.

THE worst thing about home movies is that you have to show them at home. This means in most cases that every time you want to project film—whether it is a 50-foot roll or an evening's program—you have to clear the living-room table, rearrange furniture, and rush around with electric extension cables before and after each projection.

In addition, the average living room or dining room table, while an eminently steady base for a projector, is seldom of the right height to match your screen. Therefore you either have to tilt your projector, often distorting the picture noticeably, or build things up to the right height with a pile of books or magazines. The whole thing smacks more of ordeal than of fun.

Of course there are handy, tripod-like projector stands, and de luxe projector cabinet stands. But for most of us they are beyond the range of practical politics for dollars-and-cents reasons. So we do without.

A few months ago I moved into a house that offered a fine, big basement room which could be all mine, for a combination den and workshop. Inevitably it became a projection room, too. But the old problem of finding a suitable support for my projector still remained.

Any ordinary table would be too low, while a commercial projector stand would be, in a different sense, too high. So I compromised by making my own. It cost me roughly four dollars—and is more practical than any I've seen.

Make It Big

From the start I determined my stand was going to be big enough to be practical: there would be enough room for at least two projectors, plus an

It is convenient to have plenty of power outlets; three projectors are plugged in here, with room for a fourth. Note master switch at far end of table.

ample space for the film I was to project.

My projection problems are varied, for in addition to my own personal shooting in both 16mm. and 8mm., the matter of reviewing and analyzing other films frequently involves the use of a 35mm. projector, a 16mm. sound projector, or a miniature slide projector.

Therefore my stand must, I felt, be able to accommodate at least two or three projectors at a time, free from physical interference or the need of clanging electrical connections.

This is a feature that can strongly be recommended to any individual, by the way, for many classifiers double in brass with a nucleus, and in addition marketing friends who use equipment of a different size have a way of calling with their film and projector—for an evening of movies.

It's a lot more fun if you can swing from sixteen to eight, or vice versa, without interruption.

Therefore I made my stand four feet long. This gives ample room for three, or even four projectors, and allows plenty of clear space for threading and operating them.

Since width is no great importance my stand is considerably narrower than the average table—to be precise, it is 1 foot 7 inches wide. This is amply wide to take care of even the biggest 16mm. sound machine, yet small enough to avoid waste space, which in most dens would be much too likely to become cluttered up with all sorts of things (entirely unrelated to projection!) which would be parked there for momentary convenience—and left until found to be in the way of projection!

The best way to determine height is to let your screen govern it: plan things so that your projector will have a level throw to the screen. In general, plan to have your projector's lens at the same height from the floor as the center of the screen; measure the screen center height, subtract from it the height of your projector's lens above its base, and you'll have the proper height for your stand top.

Simple Construction

In my own case, I had to conform to another fixed standard—the lens height of my 16mm. machine, a 100-lb. "portable" of fifteen years ago, equipped with its own rigid stand.

In addition, as several different sub-standard projectors might be used at different times, a further compromise was indicated. So I decided my stand should be 2 feet 6 inches high. In actual use I have found this height nearly ideal.

I started actual construction with some nagging, for I'll readily admit that there can be no carpenter worse than I am. I felt even worse when I surveyed the three dollars' worth of assorted lumber I hoped to turn into a projector stand. There were four four-



The stand should be higher than the average table, and provide plenty of room for projectors and film.



foot lengths of sturdy 2 by 2 stock, half-a-dozen equally long strips of 1 by 3, three 1 by 4 boards, and a sheet of mastic "pseudwood."

The 2 by 3s were of course for the legs. They began to look a bit like legs, too, when I connected each pair with a piece of the four-foot 1 by 3 at the top, and another, for reinforcement, about half-way down. Then, when each pair of legs was similarly connected by two 19-inch lengths of 1 by 3, the thing was really recognizable as a table.

One of the prime essentials of a good projector stand is a strong, solid top. The 1 by 6 boards provided this. To give a smooth surface above this I used the pseudwood. This can be sawed to shape as easily as wood, and in addition to being smooth and strong it is not likely to warp, even when subjected to the heat radiated by some of the better noiseless projectors.

This provides a framework which is mechanically adequate to its task. You can dress it up if you wish. For instance, an L-shaped binding of metal makes a nice trim for the edge of your pseudwood top. The woodwork, too, can be finished off in style.

A shelf placed on the level of the lower beams can be handy for storing projector cases and the like; it's a feature not yet incorporated in my stand, but one which probably will be when time permits.

And some people may feel that plywood paneling on three sides, extending from this shelf to the top, will make

the stand a neater appearing piece of furniture.

Wiring for Convenience

The final step in making a projection table like this is wiring it electrically. There's very little convenience in having such a table if you must still string a mass of wiring all over the room to get power for your projector. One wire—with suitable outlets on the table—can do the whole job, and be safer and better looking.

I began by going to the dime store and buying four rectangular double outlets, at fifteen cents each, an equally cheap switch, two little fifteen-cent Bakelite night lights, a standard two-prong connector, and about fifteen feet of rubber insulated wire.

Connecting the plug to one end of my wire, I ran my cable from the nearest wall outlet to a rear leg of the stand and thence up to the side of the top brace. Here I mounted the

switch, so that I can have the whole electrical system of my projector set-up alive or dead in a single movement.

Beyond this master switch I placed two of the double outlets in convenient positions, so that the most frequently used projectors could simply be plugged in and left that way.

Then I carried the wire on and around to the front of the stand. Bringing it to the top of the table I put another double outlet at the right front corner and the second near the middle, also at the front.

Into these I snapped the little night lights. These serve as pilot lights, so that ordinarily there is no need to turn on the room lights for rethreading the projector between reels. As the type of night-lights I used are equipped with switches the pilot lights may easily be switched on or off independently.

Correct placing of these pilot lights is quite important. They must be out of the way, yet in a position where they will illuminate your projector adequately. I learned this the hard way—I tried to economize and use only one pilot light, placed at the front center of the table.

It was worse as long as I only used the projector at the left end of the table, where the pilot-light could shine on the right, or operating side of the projector.

Invest 30 Cents

But if I used a projector at the other end of the table—or even a little beyond the middle—the pilot light was worse than useless, for it shone right in my eyes and disturbed my efforts at threading in the dark. The additional thirty cents for another outlet and another light proved a worthwhile investment.

To sum the matter up, a table of this sort not only provides a firm and always ready support for several projectors, but gives one plenty of room

(Continued on Page 575)



Fifteen years of projector progress—*stems, runs, and lenses.* Note lenses are at approximately same height for uniformly good projection; little tilting is necessary.

**HIGH
INTENSITY
PROJECTION**

VS.

**LOW
INTENSITY
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AND
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AND
YELLOW**

50%

**ORANGE
AND
RED**

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VOLUME OF SCREEN LIGHT 2.7:1

SIMPLIFIED HIGH INTENSITY PROJECTION - 4200 BOWEN LAMPS

LOW INTENSITY PROJECTION - 2100 BOWEN LAMPS

Simplified High Intensity projection provides 2.7 times the volume of screen illumination as tested from low intensity lamps. This gives a clear screen image at a considerable level of ground illumination.

EFFICIENCY OF LIGHT PRODUCTION 2.5:1

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Simplified High Intensity lamps provide 2.5 times as much screen light per watt as low intensity. You cannot afford to install low intensity projection when a few extra watts per day will give you more screen light than the whole.

ASK YOUR DEALER TO SHOW YOU THE LOW COST AND BIG OFFICE THAT IS MODERN HIGH INTENSITY PROJECTION

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The light provided by modern studio carbon arcs has the evenly balanced color composition characteristic of the high intensity projection arc. Carbon arc lighting combines the photographic advantages of daylight quality with economy in power consumption and an absence of intense heat at high levels of illumination.

NATIONAL CARBON COMPANY, INC.

4000 MILE CRUISE AT SEA FOR AUSTRALIAN PHOTOGRAPHERS

PROBABLY never before in the history of the world was there an excursion that will match that conducted in Australia in July. We find a story of it in the *Movie News*, the house organ printed by the Australian Amateur Cine Society, written by an unidentified benefactor of the latter organization.

There were four hundred photographers, both cine and still, who headed the steamship *Strathaird* in Sydney. They were drawn from all over Australia, which country, it may be added, is of some size. Getting down to cases, its 2,514,581 square miles is shy of the area of the United States by a trifle of 50,000 square miles.

While the writer of the story did not give the starting time he did say the ship stopped two and a half days in Brisbane and in Port Moresby a matter of a couple of days. The distance traveled was four thousand miles. The Great Barrier Reef, which was along the tourists' line of travel, runs north and south 1250 miles and parallel the east coast 60 miles off shore.

Port Moresby, the northernmost point of the travelers, is situated on the Island of New Guinea, which sets just south of the equator and reaches the tenth degree of latitude to the south. In fact, Port Moresby rides on the tenth parallel. It is there the village of Hamsabadia is situated.

It may be remarked in explanation of the writer's statement they left Sydney on a "cold, wintry day," the month was July, Sydney is "down under," in 34 south latitude, in the identical comparative location as Los Angeles on the west of the United States and Columbia, S.C., on the east.

But here is the story in the *Movie News*, and it is a matter of regret we are unable to print the writer's name.

P. and G. Photographers' Cruise

By an A. A. C. S. Member on Board

The Photographers' Cruise which left Sydney a month ago has been adjudged a complete success by all participating.

Drawn from all over Australia, over 400 photographers in Cine and Still made the *Strathaird* their hotel.

Leaving Sydney on a cold, wintry day, the run to Brisbane was made in perfect weather. Passengers readily availed themselves of the organization provided on board by the co-operation of the Queensland Tourist Bureau. Tours were booked for a large number of sightseeing trips in Queensland; when, in gorgeous weather, both Cine and Still photographers spent a most interesting two and a half days.

On arrival in Brisbane, we were met by a committee of the Cine workers of that city. The committee was rather disappointed that the photographers on board had their schedule fully booked and could not accept the invitations they extended. It was a wonderful gesture on the part of the Queenslanders and, no doubt, on future occasions their wishes will be taken into consideration when arranging local tours.

Photographers' Paradise

Leaving Brisbane, we headed for the Barrier Reef where, inside the Reef—amid placid waters and warm sunbathers tempered by delightful sea breezes, the *Strathaird* just reentered its way among the galaxy of colorful atolls—giving the photographers a wonderful opportunity of recording island after island mirrored in chronos, yellows, and blues that were the delight of those who featured color photography as a highlight.

The arrival at Port Moresby—just after daylight—was a scene that left the passengers almost breathless. No sooner had the anchor settled amongst

Strong Onions

From The Hollywood Reporter

Sidney-Camtra squad from Cine-sound Newswell boarded a tug to take shots of uniking of former navy ship, *Shalwart*. Hull of ship to be sunk was loaded with 300 tons of return, condensed onions. Newswell men were overcome by stench from onions and did not get their shot.

the coral at the bottom of the bay than native canoes arrived, seemingly from all points of the compass. The natives diving for coals thrown to them gave the photographers wonderful opportunities of recording animated actions against the background of the calm waters and the dark jungle beyond. Under the gaiety and laughter of this welcome was heard the beat of the tambores in the distant hills, peevishly the scene that would be enacted during the day.

Promptly at nine o'clock the passengers started to land; they were transported very quickly to the big village of Hamsabadia where the photographers got first glimpse of village life—and were they interesting! The sale of Cine film taken here, when perfected, will tell an amazing story of the varied scenes confronting us. From there—to the big singing where the warriors had already started to dance, having spent the whole of the night before in preparation. Head-dresses of Cassowary feathers were freely picked out. Thus head-dress, we understood, is the hall-mark of a warrior who has taken his man in the right and proper manner. The Chiefs were head-dressed with Bird of Paradise plumes. The ceremonies and dances we witnessed were pictures few travelers are likely to see—even in Pagan—as these dances were only held by special permission of the government.

Danced All Night

These Sons of the Jungle danced the whole of that day and the following night until daylight came again. Then, by law, the singing ceased and for them became a memory of yesterday. We, the photographers, were more fortunate because we carried in our cameras the evidence of scenes enacted that will, I am sure, leave the beholder spellbound when shown in Australia.

The temperature at Port Moresby was up to 97 degrees but the warmth was not uncomfortable and everybody was dressed for the occasion. On the second day, we left Port Moresby on our return to Sydney and for two days we were still favoured with placid waters and warm temperatures. Passing Cape Byron, we ran into heavy weather but there again—"Variety is the spice of Life." These photographers who for the first time on the trip were stricken with mal-de-mer listened with envy to their more fortunate companions who braved the elements and took shots of the big seas that made it an uncomfortable for them.

Over 5000 still pictures were known to have been taken and over 1000 ft. of natural colour Cine was exposed. The amount of black and white that was also exposed would be hard to estimate.

Those who made the trip are certainly looking forward—if given the opportunity—to repeating it next year, maybe to some other island of the Pacific where pictures of the native life, villages, and many skies will add to their collection of Cruise memories.

HOME MOVIES NEED SOUND

By Ormal I. Sprungman

Photographs by the Writer



The loud speaker portion of case is set up beside movie screen. Speaker cover is unhinged.

SOMETIMES one wonders how we ever managed to survive those pre-historic days when a broken down piano in a professional showhouse provided the only alleged musical accompaniment for otherwise silent films.

How we thrilled at Al Jolson's first big sound feature, "The Jazz Singer," and how green with envy were the jobless wind-and-string gents who promptly attempted to enlist public support in a futile war against that arch-demon—acced music!

Of course, sound and music with films could only be a fad. Every theatergoer in the country would soon demand a return to silent versions.

But somehow the demand became lost in the shuffle. Not only has enthusiasm popped up through the years, but even the most bleary-eyed, weed-dyed amateur cinematographer has been tearing his hair, figuring out new ways of adding sound effects and a voice to his sub-standard productions.

Efforts to make home performances compare favorably with professional sound presentations, to which most movie

fans had become accustomed, prompted considerable research among amateurs.

First of all were the word-of-mouth "talkies," whereby the amateur projector attempted to outsmart projection houses by shouting his running commentary as the film unfolded. Then somebody dusted off the once-abandoned photograph, and for a while the palm-pressed picture was wheeled out some merry tunes.

Record Players Accepted

Inexpensive photograph record players, electrically operated and designed to plug into any radio, next hit the market. These were purchased and operated usually in pairs to permit cutting in sound effects while background music was being played.

Record players were widely accepted—in fact, many thousands are doubtless in use today—but there were still those among cine class who wanted greater compactness and portability.

Soon dual turntables were being installed in discarded carrying cases. One

amateur even set one up in a woman's traveling bag. Every effort was being made to improve tone quality and simplify operation, and today—thanks to a handful of really serious workers—the acme of something or other has finally been reached.

One member of the Minneapolis Cine Club—a *movie-maker* for only three years but a radio amateur (W9CSY) as far back as he can remember—watched the sound parade purely as an observer. It fascinated him.

So he set out to build a dual turntable unit of his own (see August 1939 *American Cinematographer*, Page 366,) but it was a bulky affair, which required two Baryan-muscled furniture movers to haul it around.

The outfit boasted of most everything any intelligent amateur might ask for—double turntables, cue sheet light, tone and volume control, and an easily removable loud speaker unit which nestled into the base. In fact, it had everything but gas bent and running water.

Yet, it had its shortcomings. George Culbertson's movie-making friends were



George Culbertson of the Minneapolis Cine Club is shown with his drive dual turntable outfit, which he built for sound synchronizing amateur-made movies.

The top of the carrying case, housing loud speaker, is easily removed from turntable-amplifier base. Compact, three-in-one outfit, weighs only 45 pounds.

Vertical view of screen-tube outfit having volume expansion—a new variable volume amplifier feed notes and gives natural depth to music. Note three pickup arms, each having separate pilot lights to aid record playing in darkened projection room.



free with their criticisms. Make it more compact, knock off some weight! No easy assignment, this, for turntables and motors are heavy affairs. And George knew that diminishing the size of a loud speaker often diminished tone quality.

An inch was lopped off here, a couple inches over there. Then he added needle cups for convenience. He put pilot lights under each pickup arm to aid in finding record grooves in darkened projection rooms. He even set up a third pickup arm for double-fingered fellows who like to take two cuts off the same record simultaneously or replay the same disc without the usual abrupt break.

To synchronize film action with sound effects even more closely, he installed push button cut-offs to hit off, say, a steamer whistling at any length from a continuous sound effect.

His turntables, operating at 78 rpm, would take either 14 or 12 inch discs. Volume expansion, a comparatively new wrinkle in radio, was also added to amplify the loud notes and give depth to normal recordings.

The carrying case, built by a nationally known trunk maker to exact specifications, housed turntables and amplifier, while the upper portion, unshaped, contained the built-in loud speaker, ready for immediate placement beside the movie screen.

As evidence of compactness, the fifty-foot extension was wound around metal fingers mounted inside the lid. Two of the fingers were designed to hold the turntable tops in position for carrying, while special clasps locked the pickup arms securely.

Show Is On

Such careful attention to minor details not only speeds setting up and operation of the equipment, but also adds to the enjoyment of sound synchronization itself.

In actual use, the turntable-amplifier portion of the case is set up on a table to the right of the projector. The selected recordings are placed to the right of the sound unit after removal of the discs from a partitioned carrying case.

A cue sheet for each film is set up conveniently before the operator for





quick consultation, then the lights are dimmed and the show is on.

Now, every movie scene in most every film will put you in some sort of mood. If a butterfly is shown flitting about in your flower garden reel, you may start feeling sort of light-headed and jovial yourself.

But mountain and wilderness sequences make you feel differently, perhaps leedly and majestic. Properly selected music will help to enhance the effect created by your film, while perfectly synchronized sound effects will make the thing complete.

Some moviemakers would have us believe that the dual turntable, grinding out sound and music with disc, is low-brow entertainment, and only a stepping stone to the perfection supposedly reached by the more refined sound-on-film.

The truth of the matter is that double turntables can produce music far superior to the celluloid product, even varying background music with each performance, without worrying about the disastrous consequences of a sound film break.

Take it from a carload of amateurs the country over, it's a lot more difficult, yet a peck more fun, playing with turntables than tinkering with celluloid recorded sound.

Wide Variety

By consulting the catalogs of Victor, Brunswick, Decca and others, a wide selection of background music may be obtained. Sound effect discs are available from several concerns,* and most any natural or man-made sound from the roar of the surf to a cricket's chirp may be had at prices ranging from \$1.50 to \$2.50 per double-faced disc.

Speedy-Q sound effect discs and one card. Note individual "cuts," each representing different sound effect for home movie use.

While some thought might be given to the selection of suitable recordings during editing, usually detailed scoring is never attempted until after the film is fully edited and tiled. It is hardly advisable, for instance, to synchronize sound with every bit of film action.

Short scenes do not warrant it, and it is much wiser to touch only the high-lights and let background music cover up the remaining footage.

When the film is completed, ready for the addition of sound and music, screen it in its entirety and make a list of the major sound effects you think you may require. If it's a travel film, your hat might run something like this:

**VICTOR* Victor, Camden, N. J.
Speedy-Q 3101 Farnam Street, Los Angeles
Grandstand Radio, 106 North Michigan Avenue, Chicago

Calibertron makes a final adjustment on underside of a five-tube turntable unit. The sound outfit has both volume and tone control, and is equipped with push buttons for split second synchronization. This five-tube sound unit, having two pick-up arms, is equipped for microphones plug-in. *Calibertron*, leisure-time turntable builder, radio ham for many years, has recently joined engineering staff of one of Columbia's chain stations.

Harmon sounds.
 Wind and waves at sea.
 Traffic on nation's highways.
 Train-time for native dances.
 Gulls swooping.
 Birds singing.
 Train arriving at station.
 Airplane taking off and in air.

Quick reference to any sound catalog will reveal that not only are all these effects available, but also in different forms. For instance, you can secure boat whistles ranging from the half-hearted toot of a fishing scow to the deep bass of a transatlantic liner. You can get howling wind all by itself or in combination with crashing waves and creaking timbers. As for trains, there are coal-belters and diesels, while glasses vary from one-lungers to Clipper ships.

Vocal Refrain Distracts

Picking your final music will be the hardest job.

Many musicians are agreed that organ music is hard to beat for Kodachrome movies. Good classical stuff will also fill any order, but pieces should be smooth-flowing, free from loud blasts alternating with soft trickles. Because vocal refrains seem to detract from the film itself it is advisable to choose recordings of an instrumental nature.

One sound enthusiast of the writer's acquaintance studies the record catalogs, page for page, makes up a want list.

(Continued on Page 476)



SMOOTHING ROUGH SPOTS OFF VACATION MOVIES

By WILLIAM STULL, A.S.C.

THE big trouble with vacation movies is that in most cases the movie is incidental to the vacation. Both the novice and the seriously advanced cinephile are likely to forget or slight the many little details of planning and filmic construction that build for a smooth running picture: Vacation fun simply makes serious movie-making take a back seat.

But when the last roll finds its way back from the processing plant the story is different. Vacation is over; now movie-mindedness comes to the fore, and the film suddenly becomes full of filmic "rough spots" that have to be smoothed away before the picture can be considered a creditable thing to show.

Such photographic imperfections as under and over exposure are for once of relatively minor importance when we reach this problem. There is very little that can be done about poor exposure, anyway, other than cutting out the badly exposed scenes. But there is a great deal that can be done to remedy the other, more important film in which most vacation movies are subject.

Study Film First

The logical first step is to assemble the film roughly and study it. Since as a rule a vacation means going somewhere, we can generally achieve a satisfactory "first cut" by simply splicing the individual rolls of film on a reel in the order in which they were shot.

This first inspection often shows that the picture would become more coherent if certain related scenes were grouped together—with some, perhaps, moved up,

and others moved back. At the same time, it's extremely likely we'll find some scenes that obviously have no place in this vacation picture; these might just as well be eliminated at this point.

So far, we've got a strictly pictorial film, and even though the rough spots are making themselves increasingly evident, most of us find it all too easy to dismiss many of them by saying, "Oh, I'll bridge that over with a title!"

But if we let it go at that, and wait until we're really ready to tackle the final titling job, we'll make the sudden discovery that some of the gaps can't be bridged with any logical title.

Temporary Titles

Back in the days of silent pictures, when a film reached this stage of its growth, we used to insert temporary titles. These "temp titles" or "scratch titles," as we called them, were by no means the finished product; they were written reasonably carefully, but were quickly photographed, and cut in merely to give an indication of how the finished title would fit into place.

"Temp titles" are an equally good idea for the amateur film at this stage. Probably the easiest way to make them is to type them on white paper, and photograph them on positive film.

This way they don't cost much—half-a-dollar or a dollar's worth of positive film will usually title a whole picture, and developing the film only costs a few cents.

But it is really surprising how different a picture seems once these "temp titles" are in place. You begin to see which of the gaps really can be bridged

with a title and which will need some other sort of medicine.

Once you know that, you can begin to do something about it. You will find that the rough spots usually group themselves into four classes.

First are the scenes that drag or are repetitious. Second are the scenes that aren't there—the important shots which, like the proverbial big fish, got away. Third are shots that perhaps you couldn't be expected to get: close shots of yourself in the places visited.

Fourth are the yawning gaps where you jump too suddenly from one place, time or idea to another unrelated one. There's a way of curing or improving all of them.

Added Scenes

Dragging and repetitious scenes can be cured easily with a pair of scissors. Some shots that drag can almost always be shortened to good advantage: If the shot runs seven feet, trim it down to five or four.

If there is apparently dragging action in several shots in which a person, a train or a car apparently travels from one place to another, tighten up the exits and entrances; you can almost always cut just as such an object begins to leave the frame, and trim the beginning of the next scene to open with the object well—but not fully—in the frame. This speeds the action surprisingly.

Repetitious scenes are likely to be a by-product of "pet shots." Of course we're all proud of good photography—but why rub it in to the audience? A really good view shown only once or twice makes a much better impression than if it is repeated, with minor variations, half-a-dozen times.

But the scenes that are missing offer a slightly harder problem. Certainly, if you live in Los Angeles you can't conveniently go back after a scene you missed at the New York Fair! But you can suggest it if you use a little creative ingenuity.

Picture postcards and the illustrations of travel folders, photographed by means of a title, can bridge many a gap and look—even in Kodachrome—almost as convincing as the real thing. And if by 2 milium transparencies, projected on a translucent screen in a title, can be amazingly realistic.

Also, if your picture is in black-and-white, you can bridge many a gap by the discreet use of footage from commercially produced MGM. and RKO. "Travelites." One of my friends recently came back from Hawaii and let seventy-five feet of a 100-foot commercial MGM. subject double in brass for the scenes of Waikiki's surfing where he couldn't shoot for himself.

Closeups of Yourself

Commercial pictures will hardly serve in spots where you'd like to have a closeup of yourself to show that you, unlike "Charlie" of beloved memory,

were "dere." For this, you can borrow a lot from studio technique.

The simplest trick is to make your leapup avoid some similar scenery, carefully choosing an angle that eliminates any embarrassingly specific background.

For instance, if you have a shot of the parachute jump at the New York Fair, what is simpler than making a shot of yourself from a low angle, with only a sky background, looking up, and then apparently following someone down with your eyes? Cut into the real sequence in the proper way, audiences will be positive you were following the jumper shown in the adjacent shots.

A single pine branch can suggest a Colorado forest; a Pullman—or even a hay-cock—at the local station, shows how enough, can suggest boarding or seeing a distant train.

And if you, or any of your friends are miniature camera fans, the simplest method of all is available. Simply project the minuscule slide that shows the desired background on to one of the small process screens that are available for amateur use.

Take up your own position a foot or so in front of the screen and arrange the lighting so that it is largely from the sides, and kept well off the screen. Then start the camera going and photograph yourself apparently in the desired, distant scene!

Adding Transitions

The final problem is in filling the gaps in a continuity that you find when your film leaps too suddenly from one place or idea to another. Sometimes a title—especially a fairly long one—will do the trick; but there are times when a title isn't enough—when you feel the need of something to tie the two ideas together, or to put a figurative period to denote the end of one sequence and a capital letter to begin the next.

In many instances a simple added scene or two can connect them. For instance, if your film deals with a moving vacation, and you find a yawning chasm between your sequences on two important places visited, a simple long-shot or two of the car on the highway—preferably with a fade-out and fade-in between the two highway scenes—will suggest the idea of travel, and work in naturally with a title that says, "So we drove on to..." or "And here we are in..."

Of course there are times when local scenery can't well be used for such transitional shots; for instance, if the gap occurred between Yellowstone and the Grand Canyon, while your hero was in New England, it would be almost impossible to "double" local scenery for the western desert!

In that case, a few closeups of an auto-wheel rolling along the highway might do, or a shot like that followed by a closeup of your speedometer with

the needle pointing to your favorite cruising speed.

Such inserts of a speedometer, by the way, can often be made without much trouble by simply jacking up the rear wheel of your car, putting the car in gear and running the motor up to the desired speed indication. Still easier—run the bus up on the neighborhood gas station's greasing hoist!

Fading Out On Developed Film

But there are occasions when neither an insert nor a title is quite the thing to use: when nothing will suit your purpose but a fade-out on one sequence followed—perhaps after a title, perhaps with no title—by a fade-in.

Fortunately, it is an easy thing to put in a fade on developed black-and-white or color film. This is done with Fotofade, a chemical wash, incidentally, came into being partly as a result of an article by this writer published in this journal some six years ago.

For a simple fade-out or fade-in, simply hang a weight—an ordinary film developing clip will do—on the end of the scene that is to be sequestered. Then, after mounting the film in water for thirty seconds, drop the weighted end in a jar of the Fotofade solution, lowering it frame by frame until the desired length of fade has been immersed.

Do this slowly enough so that the dark end of the fade will be in the solution long enough to blacken thoroughly—say a minute or a bit more.

It's Rossen and Davey

WINNERS of the Hollywood

Reporter's poll of reviewers for the pictures released during the month of August were Harold Rossen, A.S.C., and Allen M. Davey, A.S.C., respectively black and white and Technicolor cinematographers. The subject was "The Wizard of Oz," MGM issue.

The vote for second was a tie between Oliver T. Marsh, A.S.C., and Joseph Ruttenberg, A.S.C., for MGM's "The Women" and F. A. Young and Joseph A. August, A.S.C., for EKO's "Nurse Edith Cavell."

There also was a tie for third position, the votes splitting between J. Roy Hunt, A.S.C., and Hal Mohr, A.S.C. The subjects respectively were "In Name Only" and "The Under-Pup."

Then give the film a shake and remove it quickly, dipping it immediately into clear water and shaking it around so that it gets a good rinse for fifteen or twenty seconds. Finally, squeeze the film gently between folds of a damp chamois or a viscose sponge, and hang it up to dry.

If, as sometimes happens, the scenes you want to separate by a pair of fades were shot consecutively on the same film, and you don't want to cut and replace them, simply loop the film carefully, with the weight hooked in the loop (bearing on the celluloid surface, rather than on the emulsion) and make both fades at once as though you were making a single fade.

Wipe Often Needed

For more closely related ideas a wipe is often needed. Of course a true wipe must either be made in the camera with a mechanically interlocked wiping device, or in an optical printer.

But an acceptable wipe, in which the scene wipes to black, and then to the next scene, can be made with Fotofade and waterproof Scotch tape.

Make Both Wipes at Once

If you are good at splicing, you can make each half of the wipe separately; if not, splice your two scenes together, and make both wipes at once.

In making these chemical wipes, you simply place the Scotch tape diagonally across the film (emulsion side), covering the areas that you want clear and leaving exposed the area you want spangled for the wipe.

Be sure, though, that the tape is pressed down firmly on the film, so none of the solution can creep in under the tape and make your wipe ragged-looking.

Then, after wetting the film well, you simply immerse the portion to be "wiped" in the Fotofade for at least two minutes. This is long enough to dye the uncovered part of the film a good, opaque black. Then rinse and dry it as you would a fade, being sure to rinse thoroughly to remove all surplus solution before you remove the tape.

By this time, you have tightened the cutting of your picture, put in all necessary added scenes and inserts—at least all that you can possibly make—and bridged the transitions with fades, wipes or inserts.

Unless you have gone very wrong indeed in your filming, the picture will hang together better and move much more smoothly than it did when you first screened it.

Now all that remains is to replace your temporary titles with permanent ones—and you will find your vacation film very efficiently salvaged, and in shape to make a really good impression on your audiences—friendly or otherwise.

FASTER FILM AND BETTER EQUIPMENT FOR 8MM.

By WILLIAM STULL, A.S.C.

THE big news of recent months has been the introduction of improved equipment and films for 8mm. moviemaking. For years 8mm. films have been known for a wide-angle lens and for faster monochrome films.

Now Bell & Howell has given them the lens and both Agfa and Eastman have provided faster films. The net result is a marked increase in the scope and flexibility of 8mm. home camera-work.

Anyone who has tried to film interiors in the average home with an 8mm. camera realizes the value of Bell & Howell's new Hyper Cinar wide-angle lens. The 12½mm. lenses with which 8mm. cameras are normally equipped have a most inconveniently narrow angle of view.

In theory, they should cover the same angle as a one-inch (25mm.) lens on a 16mm. camera—that is, a horizontal angle of 21.2 degrees; but in practice, they appear to have even a somewhat narrower angle, which is confirmed by the figures given in Jackson Rose's Handbook, which indicate a horizontal angle of 19.7 degrees.

The Hyper Cinar, which correctly speaking is not a lens at all, but a highly corrected supplementary lens which may be fitted to the standard T. T. & H. 12½mm. f2.5 objective of Bell & Howell sights, gives slightly more than double the normal angular coverage, widening the view to 42 degrees.

This, incidentally, is considerably wider than the 36.6 degree angle covered by the 16mm. wide-angle lens on 16mm.

film. The equivalent focal length of the Hyper Cinar is approximately 8mm.

Wide Angle Lens

Tests made with the Hyper Cinar show it to be an excellent objective. Distortion and focus remain clear-cut to the edges of the frame. It gives very satisfactory results in color as well as monochrome. The construction of the lens is such that while the standard lens to which it is attached is of the fixed-focus type, the Hyper Cinar not only widens the angle, but converts it into a focusing lens. The calibrations on the Hyper Cinar permit focusing down to 2½ feet.

A certain amount of distortion of perspective is probably inescapable with any extreme wide-angle lens, and might certainly be expected in a wide-angle supplementary lens.

The new Hyper Cinar, however, appears remarkably free from such faults. In the tests made of it for The American Cinematographer, little if any such distortion was to be seen.

Since the lens is of somewhat complicated optical construction, with almost as many elements as would be expected in a normal objective, there appears to be some slight loss in light transmission. This does not appear to exceed half a stop, and may be considered negligible except in unusually low-key lightings.

The diaphragm calibrations of the basic lens to which the Hyper Cinar is fitted may be used and considered accurate.

Specially matched viewfinder lenses for use with this wide-angle objective are being supplied. It may be mentioned, incidentally, that since the Hyper Cinar is made by the well-known French

optical firm of Sorm-Berthiot, in Paris, the present international situation may possibly retard deliveries of the new lens, though Bell & Howell is understood to have an ample supply available.

Agfa's Twin-8 Hypan

The first of the fast 8mm. films to be announced was Agfa's Twin-eight Hypan. This has a Weston daylight speed-rating of 24, and is 16 to 16mm. light. From the results of our tests, these ratings—especially the daylight rating—appear to be conservative.

Twin-eight Hypan is a fully panchromatic film, with excellent fine-grain qualities. While weather conditions at the time of our tests did not permit making exhaustive tests of the film with filters, it appears to behave excellently with all normal filtering. The gradual character of the film are excellent, and it has the snap and brilliance necessary for 8mm. projection.

Eastman's Super-8

Eastman's Cine-Kodak 8 Super-X Pan offers similar speed—Weston 24 to daylight, 16 to Munsell. Like the Agfa product, these ratings seem conservative, especially as regards daylight sensitivity.

Super-X 8 is listed by Eastman as having "group C" sensitivity. In other words, its color-sensitivity is similar to that of the familiar Cine-Kodak 8 (regular) Pan. Accordingly, all filtering and filter-factors that have been useful with the regular pan can be applied, unchanged, to the new, faster film.

The grain size of the new film is remarkably fine—very closely comparable to that of its slower predecessor. The contrast characteristic appears to be slightly softer than that of the former film; it is definitely pleasing.

Using Fast Film

In general, it may be suggested that in using either of these films, the amateur will do well to follow the example of his professional fellow who, in using the new super-fast 35mm. emulsions, learned to handle his highlight illumination with increased caution. There seems a slight tendency toward "burning up" highlights if such care is not taken, and it will be well to keep high light illumination on the soft side until familiar with the new film.

And what does this increased speed mean, in practical terms? It may mean either one of two things: the ability to use less light, or to stop down for increased definition.

This is of course especially notable when working under artificial light. Eight millimeter has always been at a disadvantage in this respect as compared to the far faster films available for 16mm. use. While the new films do not entirely overcome this, they certainly improve the situation.

To cite a concrete example, where a user of the old film would find it necessary to open his lens to f2.8, the

(Continued on Page 472)

Applying Common-Sense to Shooting Stills in Kodachrome

By HARRY COTTRELL

*Head of Still Department
Paramount Pictures Inc.*

MAKING color stills is no longer an assignment for the specialist. Since the introduction of professional Kodachrome cut film we have proved that any real capable studio still photographer can make consistently good color stills if he will only remember the few, basic limitations of the process.

Thus, of course, parallels the experience in Technicolor cinematography, which has seen its greatest advances since the studios have been placing their monochrome-trained cinematographers in command.

In my own department at the Paramount Studio we turn out an average of sixty Kodachromes a week. The percentage of successes is very high—but we have no "color specialists"; at least six men (seven, including myself) handle our color shots in addition to their regular black-and-white work.

We have found it simply a matter of applying common-sense to the task and keeping in mind the inherent limitations of color.

The first of these is restricted latitude. It is inherent in every color process yet devised.

Latitude: 20:1.

In monochrome we are accustomed to a film that has a very wide latitude, somewhere in the neighborhood of 100 to 1. That is, your brightest highlight can be 100 times as bright as your heaviest shadow, and still keep within the normal, safe reproductive range of film and printing.

In Kodachrome this latitude is greatly reduced. We've found it is more on the order of 20 to 1. That is, the brightest highlight should be no more than 20 times as bright as the heaviest shadow. Such highlights as crosslights and backlights must especially be watched. If they are allowed to become too intense, they'll give a "washed-out" effect in the picture.

And when a color picture is "washed-out" not only is the color in that area burned to a glazing white, but definition is destroyed, as well.

The second vital thing to keep in mind is the fact that when you are making natural-color photographs, not only the actual color of your subject is important, but also the color of the light that illuminates it. Any color film or process is balanced to give normal results with light of some definite color.

For instance, the regular or "daylight" Kodachrome, is both the professional cut film and the amateur minimum and hence more strict, is balanced to normal daylight, and light of any other color will give an off-normal picture.

The Type A Kodachrome made for miniature camera and home movie use is balanced to the light of the Photo-flood and "CP" lamps, which burn at a color temperature of from 3280 to 3600 degrees Kelvin. The Type B professional Kodachrome gives its best results with high-efficiency Mazda globes, at a color temperature close to 3200 Kelvin. The average Mazda found on

the set burns, when new, at around 3100 K., and grows progressively redder as it ages.

Color Corrected Lenses

Although the professional Kodachrome cut film will fit in any modern still camera's holders, it is important to expose it through lenses that are fully color corrected. This is particularly important in motion picture studio still work, since so many of the lenses and cameras now in use date back to the old days of orthochromatic film.

The equipment we had may be considered average; our cameras were equipped with Goerz and Cooke lenses which, in the ortho-film days, had been the best obtainable. But when panchromatic film—and especially the highly sensitive types now available—came in, we found they were not corrected even for panch.

To our surprise we found that even in monochrome they evidenced peculiarities never suspected in the old days. At full aperture their definition was excellent, but when they reached f.11, definition began to fall off.

This continued until they were stopped down to about f.22, when they sharpened up again. Obviously, such lenses would be still worse for natural color photography.

Yet we found it almost impossible to obtain modern, fully color corrected lenses in the sizes required for our still cameras. Finally, after more than a year's effort, we obtained several Bausch & Lomb Protars, which had been especially corrected for color. Though these lenses are relatively slow (their maximum aperture is f.5.6) they have proved excellent for color.

Our color still work divides itself into three broad groups. First there are color portraits made in the gallery. Second, color portraits and publicity shots made outdoors. Third, production stills made on the set.

Gallery Portraits

Because every factor in the portrait gallery is completely under control, gallery portraits are the most consistently perfect. The all-important matter of lighting can of course be controlled to conform precisely to the requirements of our color stills.

For this, we use the high efficiency bulbs, and check their color temperature carefully with a special color temperature meter made by General Electric. Within reasonable limits, we can correct discrepancies in color temperature by using corrective color filters on the offending lamps.

This is important, for if the lamps drop below the correct color temperature the picture will take on an unpleasantly reddish cast. If, on the other hand, the color temperature is too high, the light becomes bluish. And it is most disturbing to see bluish tints of backlight or crosslight in the hair of a pretty blonde.

Contrast is something that can be



A group of graduates study Paramount's *Technicolorized* "Hoboken": all of them have been directed in *Hoboken*. (1) An almost color subject, though too strong in a brief strong too good coloring. (2) An ideal color shot; color-contrast between green of foliage and water, with colors of flowers and faces, with a simple picture. (3) The contrast between the shadowed foreground, brightly-lit distance make this a soft color subject, it exceeds the best exposure latitude of *Hoboken*. (4) An almost ideal lighting for



...the scene still. Color
...a place here than accom-
...the dramatic the dramatic
...the scene that the coming
...the scene (5) Another co-
...the scene subject. (6) Na-
...the scene portraits can be
...the scene the color and
...the scene the lighting on hair
...the scene the production still, repre-
...the scene the character of a submarine,
...the scene the stronger coloring
...the scene the scene stand out
...the scene the scene in scene
...the scene by Jack Kofman.

very accurately controlled in gallery portraits. We have found we get the best results when the contrast is held well within the 1:20 latitude of the film. In fact, it is a very good idea to keep your lighting so balanced that the extremes of highlight and shadow fall, if separate readings are taken with a standard Weston meter, between the "A" (1/4 normal exposure) and the "C" (twice normal exposure) points on the calculator dial.

In general, we try to keep our overall light-level keyed to a point such that when we take an overall reading with a Weston meter we get a light value of 20.

This does not by any means imply that the lighting must be flat and characterless. It does mean that the lighting should have very much less contrast than we're accustomed to using in black-and-white. And above all, the lighting should be fundamentally soft in quality, for harsh light beams tend to washed-out highlights.

Exteriors

In making Kodachrome exteriors we usually have to make the best of what nature gives us. Here again after lightings are preferable, and wherever possible the use of reflectors—the familiar silver ones—in well worth while. Generally we give an exposure one-half the meter's reading; this can be done very easily by simply taking your reading with the "A" (1/4 normal) position on the calculator rather than the "B" or normal arrow.

Exterior Kodachromes are very effective if your subject is in the shade. However, if there is a large expanse of strongly sunlit background, you're likely to run into trouble, for the background will tend to overexposure and a consequent washed-out appearance. On the other hand, a sunlit figure in front of a heavily-shadowed background can be extremely effective.

It is a strange thing, but we have noticed in several instances where exterior Kodachromes have involved carrying focus on a considerable area between subject and extreme distance, that even in 8 by 10's our color seems to give an effect of greater focal depth than does black-and-white, even when made with the same camera and lenses. Properly photographed color also tends to give greater roundness and modeling, even though lit more softly.

Production Stills

To date, we have found it wisest to confine our making of Kodachrome production stills largely to Technicolor productions. This is due to several causes.

In the first place, the lamps used on monochrome sets are not balanced for color at all; some will be new and bright, and some old and dim, while still others, in baby spots and practicals, may be the far bluer photoflood globes.

The result is badly mixed coloration. On Technicolor sets, on the other hand,

all the lighting is balanced to daylight, whether area or Manda are used. Therefore we can go on to a Technicolor set with regular Daylight Kodachrome and shoot without trouble.

Secondly, there is the question of make-up. On Technicolor sets, color make-ups are of course used. These Kodachromes very well. But on monochrome sets, ordinary Panchromatic make-up is generally used.

And we're so far found no way of making a Kodachrome or other color shot of a Panchromatic make-up look

New Books

Make Your Own Movies. By Arthur L. Gale and King Pessels. Illustrated. Coward-McCann, Inc., New York. 234 pp. 1939. \$1.50.

"Make Your Own Movies" lives up to its title. It has a subtitle, too, by the way, which stipulates "For fun and profit." And it is herein told how to make money with your camera as well as how to enjoy it—or both.

"Are you just a beginner as an amateur moviemaker?" inquiry is made in a blurb that is printed on the cover. And the blurb goes right on: "This book will start you off on the right foot. You are an old hand with the movie camera." Well, then, this book will answer that ever-recurring question, "What do I do next?"

"Here are ideas for family movies, for vacation reels, for the sports enthusiast, for the travel addict, for the nature lover, for the hopeful who want to make money, for the man who likes to use his hobby to promote his business or profession, for the high school student who is thinking of a career, for the social minded citizen who wants to be a force in the community."

The book points out that the advent of the new ultra-fast, supersensitive film has transformed indoor movie-making. You can turn your home into a Hollywood set with no extra lighting equipment. The book tells you how to do it, and offers brand-new picture ideas for filming inside your own home. It tells you how to place lights in the fixtures of your own living room and get professional looking results. Gone are the days when the floodlights blew the fuses.

Perhaps the best cross-section one may obtain of a given book is to show the titles of the various chapters. Well, here they are: *Movies of the Family, Ideas from Real Life, Making Movies Clear and Sharp, Making the Most of Sky, Outdoors with Our Friends, Holidays on Sand and Snow, Bring Your Travel Home, Get Close to Life, Games, Events and Parties, It's Easy to Film Indoors, Views and Viewpoints, Title Hunting, You'll Spice and Edit, Too; Showing Your Movies, Movies Go to School, Inference in the Community, Filming Your Job, How Movies Help Business, A Hobby That Pays Its Way, The Road Ahead and Seven Simple Rules*

like anything else than a panchromatic make-up. In the gallery, we can alter make-up, using street make-up, or at the very least ordinary make-up plus a special, dark-brownish-red lip-range that is moderately satisfactory.

In making production stills in color, the stillman is handicapped by the slow speed of his film and lenses. Neither are as fast as the modern Technicolor emulsions, and of course both are far behind the products used on monochrome sets.

This necessitates the use of slow exposures—sometimes a second or more. It takes a really camera-wise actor to "hold" a pose that long. Many fail to do so; and while you can't altogether blame them, it can't be denied that in making Kodachrome production stills "moves" are an expensive hazard.

Making production stills, the stillman is always at the mercy of the cinematographer. Even in black-and-white the lightings that suit the cine camera do not always suit the still camera. In color, even when the movie camera is using Technicolor, this problem is heightened.

Some cinematographers—even in Technicolor—find it necessary to go in low-key lightings which on the screen are extremely effective, but which are practically useless for a color still. Our best shots have been made on sets where the cinematographer was using a normal, moderately high key of lighting for his Technicolor.

Fueller Needs and Possibilities

In general, it may be said that Kodachrome offers the most practical method yet available of making a motion picture studio's color stills. Some improvements, however, would be cordially welcomed. For many practical reasons, we would certainly be glad to see the sensitivity of the process increased.

Another welcome step would be elimination of the need for sending our film to Rochester for processing. And sooner or later a make-up must be developed which will be equally satisfactory for both monochrome and color photography.

But the advantages of the process far outweigh these minor drawbacks. This can be especially appreciated when we look back only a few months, to the time when it seemed no two editors agreed on what they wanted in color pictures.

Some demanded a set of one-shot separation negatives; others asked for color prints on paper; still others preferred Dufaycolor or Munsell. Munsell Kodachrome transparencies: the only agreement was that an increasing number of editors wanted color-pictures of the stars. Today, still more editors want color—but fortunately nearly all agree that Kodachrome transparencies, intelligently photographed, give them what they want.

And that is what we still photographers are trying to do.

New England Inquires: Why Not Authentic Locations?

By Stanley and Maryjane Bean

16mm. Amateurs of Amesbury, Mass.



Stanley and Maryjane Bean in a scene from "Romance of the Merrimac Valley," by Mr. and Mrs. Bean, in one of their "Distinctive Camera."

IN 1925 a group of High School chums were asked to try amateur movies for a week-end venture during the summer vacation. The film to be shot was Western to the core, titled "Towards Faith." Where the device could you get outdoor settings for cow-country in Massachusetts?

Believe it or not, with the use of our old Vinten 16mm. camera, using only 25 feet of raw stock at a loading, we did get a feasible locale without painted backgrounds.

The story wasn't much. But real horses, blank cartridges, a few cowboys and a genuine hand-to-hand fight kept the audience in stitches, especially when the cameraman forgot to keep

the hand-cranked camera turning smoothly.

But from 196 feet of a grade, one-hoss opera grew an idea that New England had a variety of settings not too different from those of the California film capital.

Nineteen hundred twenty-six found the camera man on a visit to the studios of Hollywood and the outdoor locations in the hills.

Hollywood: Ideas

Back home again, this time with a 16mm. Cine Kodak, a tripod (good lens—nearly forgot that) and some ideas, most of our little company gathered again and sketched an authentic history of our Merrimac Valley, which was finished in two reels—costumes and all.

This time we were in our own element, to be sure. Courage took effect in us all, and next came the most elaborate attempt in our careers "The King of Allah's Garden" (described in an earlier issue of *The Cinematographer*), a story of Africa's game country—veldt, desert and jungle, a cast of fourteen and some work in natural color.

The film was shown to more than 10,000 persons in our vicinity, and part of it found its way to Dances Little's 1936 Party.

"Arid Desert Sands." A scene on New England's rock-bound coast (not!).



From all sides we were sure of one thing, New England had possibilities. The question was: Where were these scenes taken?

We have never used cuttings from any travel films nor have we been ingenious enough to create the correct artificial backgrounds. We know that there are many faves in our stories and acting, but we do feel certain that the settings are pretty nearly right and whatever corrections necessary could be made by any company at much less expense than the creating of artificial ones in the lot.

Location: Box Office

We realize that New England's sunshine is not as regular as California's, but most stories can be worked with regard to the weather if planned properly. The seasons offer the atmosphere necessary to many stories.

One point more in favor of shooting pictures in New England is the audience appeal. Box office receipts can be added to greatly when any particular section of our country is favored with the working of a company. Folks get many good impressions from seeing their stars at work in their profession.

Too often today movie names turn coldly on the hands that feed them. If they want the public to like them they must like their public, even when it hurts.

From our efforts at making the home



A Massachusetts home. Another, a possible Twelve Oaks in "Gone with the Wind." "... The white house reared its perfect symmetry before her—tall of columns, wide of verandas, flat of roof—it had a stately beauty." A second candidate for Twelve Oaks from a New England location. At the bottom is a suggested Danish Village, a Scarborough (Me.) auto camp.



Lady of the Lake

A lake in mountain surroundings becomes at the right camera angle Scotland's Lake Katrine replete with Ellen's Isle.

With a few shrubs, one of Maine's attractive auto courts, The Danish Village at Scarborough, could for all the world serve in all reality Miss Gorbos's "haven of refuge" in a story of intrigue in today's muddled Europe.

In the woodlands of any coast town are jungle settings enough to make Frank Buck homesick. Unusual rock-walled gorges fit for a Canyon scene in a Zane Gray yarn.

Now we turn our eyes south with the reading of "Gone with the Wind," and the anxious waiting for the film. Just this past week we scouted for a shot or two for the county plantations, and with a few apologies have a few Twelve Oaks or Tans.

We like to believe that whatever studio comes to New England in October with a Technicolor camera in its luggage and a plausible homespun story will go back to Hollywood with an achievement in natural beauty unrivaled anywhere in the U.S.A. and if the entire cast and company doesn't regret leaving us here amid our quaint gorges-based countryside and our tables of harvest plenty then we will be meek and never venture forth on foot or with pen.

Raygram Tripod Unit No. 60

The Raygram Cine Tripod, Unit No. 60, is announced for distribution by Raygram Corporation, 428 Fourth Avenue, New York.

This unit, consisting of a two-section chromolux plated steel tripod and the new Raygram swing tilt pan head, will accommodate any camera from the lightest to the heaviest. Measurement when folded, 32 inches; extends to 5 feet when open.

The swing tilt pan head tilts forward, backward, and sideways and adds additional 6 inches to height. List price of the complete unit is \$21.50.





"There's Gold..."

THERE'S gold in the autumn hills—gold and purple, red, yellow, blue and green, all the bold, all the subtle coloring of the changing season.

With Kodachrome full-color film in your camera, you are the master of this colorful spectacle. And your mastery is so easily achieved that your attention stays where it belongs—on the pictorial possibilities of the scenes before your camera.

Kodachrome film is available for both 8 mm. and 16 mm. home movie cameras. There are two types, "regular" for daylight scenes and Type A for movies made by Photo-flood light; both are the same price, \$3.75 per 25-ft. roll of 8 mm. film, and \$9 per 100-ft. roll of 16 mm. film. Fifty-foot rolls and 50-foot magazines of the 16 mm. film are \$4.75 and \$5, respectively.

Ask your dealer for a Kodachrome Exposure Guide (for Daylight); it's a small, neat, easy-to-read, and explicit guide that belongs in every movie maker's kit. Price, 10 cents.



EASTMAN KODAK COMPANY, ROCHESTER, N. Y.

QUALITY FOR THE AMATEUR CINESMITH

By JAMES A. SHERLOCK

THIS article is written for the amateur who is not satisfied with the quality obtained in his pictures by the easy snap-happy method.

The latitude of sub-standard reversal film is more limited than some film manufacturers claim. Tests were made with several well known films returned to the manufacturer's agents for standard processing and the quality of the pictures suffered when a variation from the correct exposure of more than half a stop was made. This does not mean that exact exposure must be given to get a picture, but if that picture is to be of the best quality the exposure given must be almost correct.

A very instructive article appeared in January (1939) issue of American Cinematographer by Daniel B. Clark, A.S.C. titled "Securing Uniform Results with Meters on Interiors."

This supervisor of photography for Twentieth Century-Fox carried out optical bench tests with various exposure meters and writes as follows: "Throughout these tests the General Electric Meter proved itself the most consistent available and the most nearly free from individual day to day fluctuations. It has, therefore, become our standard."

Has Two Scales

A statement such as this from one of the world's leading cinematographers should convince the amateur that he needs an electric exposure meter. The makers of the General Electric exposure meter claim that it will measure light to within half a stop.

Tests were made under both artificial and daylight with this meter. It measured reflected light to within $\frac{1}{4}$ of a stop. It is a double range instrument with two scales, one 10 stops as sensitive as the other. The latter is used for measuring light of low intensity.

The reflected light from any subject is controlled by three factors:—

1. The direction of the source of light.
2. The direction in which the eye or camera is placed.
3. The tone (or hue) and texture of the subject.

Tone and texture are closely allied for the reason that although the color of two objects may be identical, one of them might have a smooth highly reflective surface and the other a matt surface which reflects as much light but scatters it more.

This fact appears in nature more often than one would expect, but does not need a good electric exposure meter. It is more liable to upset calculations if an exposure chart is used.

If an electric exposure meter is pointed at the horizon the luminosity will be increased and subjects photographed with this light reading will appear on the film in silhouette.

Getting the Measure

If the main point of interest in the whole landscape, the meter should be tilted downward to 30° below the horizon but if detail is required in any particular object the meter should be taken to that spot and only the reflected light from the object should be measured.

If this is not possible, a nearby object of similar colour and receiving the same amount of incident light should be measured.

The photo electric cell is a scientific method for accurately measuring light variation and is essential if quality is required by the amateur cinematographer.

Different kinds of emulsions are not equally sensitive to light. 8 mm. and 16 mm. Panchromatic film has almost superadded orthochromatic stock and is

sensitive (more or less) to the visible spectrum. Super-sensitive Panchromatic is more sensitive to red than ordinary Panchromatic and is used to advantage in artificial light, which is rich in red but deficient in blue.

Summer Exposure

Some amateurs prefer to use Super Pan film under all conditions. It has a soft effect, shows detail in shadows but has less contrast between adjoining tones than ordinary pan film, which gives a snappy picture with tones well defined, but care must be taken if it is exposed in summer when the sun is almost overhead.

Under this condition reflectors are used to lighten shadows that otherwise would appear very black and would lack detail. When shooting closeups in daylight with either color or black and white film, reflectors should be used.

No filter is required for Kodachrome when used on ordinary scenes in sunlight, but for distant landscapes, sea shore, snow scenes and aerial photography a Kodachrome haze filter is recommended. Kodachrome records ultra violet light as violet but a Kodachrome haze filter will correct this.

It is not necessary to shoot color with the sun at the back of the camera, but if the colour is shaded areas is to appear natural white reflectors should be used. It is surprising that the amateur neglects the use of these accessories. Stills taken of most outdoor sets for professional pictures reveal many reflections. They are easy to make and the cost is small.

Making a Reflector

Cardboard, fibre board, celotex and three ply are suitable. A convenient size is 4 feet by 3 feet. If that is too large to carry, they can be cut in two and hinged on the inside to protect the reflecting surface.

The reflector should be mounted on a light framework, the corners braced and the surface sprayed with two or three coats of flat white paint which will reflect a soft white light suitable for color or black and white film.

Other types of surfaces can be made by using white enamel or aluminum paint, but these reflect a harsher light.

With a very little practice the eye will soon become accustomed to see when and where reflectors are required. They should not be used to evenly balance each side of an object, but to brighten the shadows in which detail is desired. The moviemaker must remember he is painting with light and that correctly balanced light and shade give the picture depth.

The majority of subjects photographed are colored, but unfortunately pan or super pan film do not register colors in exactly the same tones as the human eye sees them. This is particularly noticeable in the blue region of the spectrum.

Colored filters may be used in front

to the lens to compensate for this deficiency. They are also used in sunlight to create pictorial effects and to accentuate shadows or particular colors.

If the sky is overcast, filters lose their usefulness. It must be remembered that by placing a filter in front of a lens the diaphragm must be opened to compensate for the amount of light absorbed by the filter. If you use a filter which darkens one part of the spectrum it will at the same time lighten another. If the correct filter is not chosen for a scene the sky may appear too dark, grass or trees appear white, and yellow or red flowers may have the same tone as white flowers.

The chart accompanying this article shows various colored strips of paper photographed with different filters. A study of this shows that a colored filter lightens its own colored strip but darkens others, and unless care is taken when choosing a filter to use on any scene, it may appear overfiltered and unreal.

When Buying Filters

There are many types of filters on the market, but the serious amateur cinematographer would be well advised to standardize the size of his filters and make or buy a lenshood which will hold a 2 by 2 inch filter. For these people who are not so serious, lens manufacturers produced a limited choice of filters which are made to fit each lens.

A 2 by 2 inch filter is large enough to cover the front of any cine lens regardless of its focal length. Another advantage is that these filters can be used with a still camera to test their reaction to a color chart. This test is a simple, cheap and effective method to learn the possibilities of a new filter or the characteristics of an emulsion, but be sure the test is made with an emulsion similar to the one you intend using in the movie camera.

Most filters consist of a piece of gelatin film cemented between two pieces of optical glass; they should be treated with as much care as that accorded to lenses and kept in their case when not in use.

CHART SHOWING KODAK AND WRATTEN FILTER FACTORS FOR VARIOUS KODAK CINE FILMS

	Type of Film
	Cine Kodak Safety
	Cine Kodak S
	S. S. Panchromatic
	Super XX
	Super X
K 1	X 1½
K 2	X 2
X 1	X 5
C	X 2½
22 A.	X 4
Ans 1	X 1½
Ans 2	X 2
3 N 5	X 4
5 N 5	X 5

FILTER AND CAMERA SPEED COMPENSATION CHART

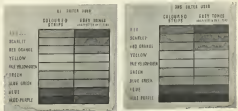
Exposure at Camera Speed of 16 Frames Per Second		Filter Factors					1½X 2X 3X 4X 5X				
		COMPENSATION FOR SPEEDS									
		8	12	24	32	48	64	96	128	192	256
		F.P.S.	F.P.S.	F.P.S.	F.P.S.	F.P.S.	F.P.S.	F.P.S.	F.P.S.	F.P.S.	F.P.S.
Normal Exposure	F 1.5	2.1	1.8	1.5	1.4	1.2	1.1	1.0	0.9	0.8	0.7
Normal Exposure	F 2	2.8	2.4	1.7	1.6	1.3	1.2	1.1	1.0	0.9	0.8
Normal Exposure	F 2.8	4	3.4	2.4	2.2	1.6	1.4	1.2	1.1	1.0	0.9
Normal Exposure	F 4	5.6	4.9	3.4	3.2	2.2	2.0	1.7	1.6	1.4	1.3
Normal Exposure	F 4.5	6.3	5.5	4	3.8	2.4	2.2	1.9	1.8	1.6	1.5
Normal Exposure	F 5.5	7.7	6.7	4.7	4.5	2.9	2.7	2.3	2.2	1.9	1.8
Normal Exposure	F 8	11	9.8	6.9	6.7	4.4	4.2	3.6	3.4	3.0	2.8
Normal Exposure	F 11	16	13	9.5	9.3	6.3	6.1	5.0	4.8	4.2	4.0
Normal Exposure	F 16	22	19	14	13	9.3	9.1	7.5	7.3	6.3	6.1
Normal Exposure	F 22	32	27	19	18	13	12	10	9.8	8.5	8.3
Normal Exposure	F 32			27	22	16	15	12	11	9.5	9.3

NOTE: Many stops indicated by above chart are not marked on the lens. Their positions can be estimated by the eye with sufficient accuracy.



G. FILTER. An orange filter which produces very correction, absorbs the blue light which is prevalent in shadows on a clear day, thereby making them appear darker. It will remove haze and atmosphere from a scene, but should not be used as a no-scope unless it is required to make the water appear almost black.

22 A. Is a red filter used to accentuate clouds or white buildings against a blue sky. It gives a strong contrast but it is not advisable to use so deep a filter in average pictorial work as greens will appear almost black and shadows are greatly accentuated. This should be used only as a special effect filter.



K. J. Will slightly reduce the intensity of the sky, thus slightly accentuating clouds.

Note: A cine film chart will appear later showing filters suggested by the manufacturers of other amateur films.

22 N. 5. This filter is a combination of an orange 1 and a neutral density filter. It does not give over correction but is capable of producing highest pictorial qualities on either pan or super pan film. This filter can be thoroughly recommended to the amateur.

(Continued on Page 471)

ST. PAUL CLUB TESTS CINE-KODAK SUPER-X

NEW! Three times as fast as regular "Pan." So read the ad in *The American Cinematographer*, so the St. Paul Amateur Movie Makers Club set out to satisfy its curiosity about the new Eastman Super-X film in the double-eight width.

With considerable mystery to whet the members' film appetite, the first meeting of the fall season found about 45 persons crowded around the entrance of the clubrooms in the Commodore Hotel, wondering what was to happen.

Cameramen Victor Egnapp and Russell Chapple loaded their Keystone 1.8 and Eastman 2.7 cameras with the new fast film, set up a few photofoods, squirmed through the smokers and waited, tripod-conscious, for the inflow of club members.

So the pictures of the club members wouldn't look like old-fashioned daguerotypes, Ken Hazzardwood, club president, asked each one to help move furniture from a side room into the main club room, and men, women, or child, each one suddenly found himself toting projectors, screens, chairs, rugs, tables and tablecloths through a narrow passageway which opened suddenly into the glare of the photofoods.

Here John Steen, program chairman, gave additional instructions to remove whatever formality still remained.

The first ones through saw the whole show, but everyone enjoyed their roles as actors instead of cameramen. Furthermore, very few missed the second meeting when the films were shown.

A stenographer caught some of the comments. "Why can't we go is? Why do we have to wait here?"

"Oh, I say, why all the lights—gosh, the people are laughing. Hello, Steen,—

oh, you want us to stop. Say, who is taking pictures—gosh, these lights are hot. Well, you say we can take the rug over and lay it on the floor.

"Why couldn't we carry chairs, that's lots easier. Oh well, look at that bunch cowering an overstuffed chair. Wow, that is a job, and three girls, too."

"Oh, now we start the meeting."

Wondering what it was all about, all of the members were informed that the film was taken without the use of any more lighting than the average amateur owns, in order to see how far away the film would pick up underexposed territory, without overexposing objects or persons close to the lights.

Super-X film was used up at a concert in the St. Paul auditorium, and its pictures of rapidly moving machinery such as saw, rotary wheel, buffer, etc., to learn the effect which high speed motion would have.

At the second September meeting, the films were projected, and a hilarious audience approved the extempore acting of the club members. Carrying over into the third meeting, a small group will edit the film, form a continuity and title it, to demonstrate how ordinary miscellaneous pictures can be worked into a running story and the interest heightened.

During the two evenings, 8 and 16 mm. vacation pictures were screened, and an illustrated talk and discussion showed how club members made an animation for their school police documentary film, which involved more than 12,000 individual movements to show school children crossing through heavy traffic.

The club will have a contest this year, and Leocy Harmon has offered a plaque with a polished metal camera model

as a prize for the best film. As a committee to arrange details of the contest, Harmon will be assisted by Mrs. R. Olson and Harold Laina.

Philadelphia Cinema Club

Opening the season at the Hotel Adelphi, the Philadelphia Cinema Club's September meeting got underway with the showing by George Pittman of his film "Service With Safety," a black and white print for a Kodachrome original, photographed by him for the Bell Telephone Company of Pennsylvania.

Running 1,050 feet of 16mm. size, the film depicts the wrong way and the right way to do work and do it safely. The film was accompanied by spoken comments of Mr. Pittman, for with the exception of the lead No. 10 film were used. The film was offered for critical comment, and in order that comment be headed up Mr. Beach asked Messrs. Brink, Bowersox, Hoot and Woodcock to check the film carefully and report in open discussion on their findings.

Space does not permit us to detail the full "question and answer" discussion, but suffice it to say, that for over an hour the comments were passed back and forth to the enjoyment of everyone. The comments indicated clearly that the members were all "on their toes," were able to spot errors in photography, errors in scenes; as well as expressing their views on scene lengths, duplications, speed, composition and editing (including a rather technical discussion around the subject of "cutting"). Particular mention and credit should be given Messrs. Hirst, Hoot and Pittman for their definitions and treatment of this subject.

At the request of the membership Mr. Hoot put on his film of "The New York World's Fair," running 1250 feet of 16 mm. Kodachrome, with a running comment by himself on the scenes.

Again open discussion brought forth comments that members of the club were able to produce films ranking very high in quality, so as to approach professional results. This, however, should not deter the starting amateur from submitting the results of his efforts for review and comment.

The club "Film Leader" for 1939 was awarded to Messrs. Brady, Bowersox, Flager, Hirst, Hoot and Woodcock, for films exhibited in the 1939 season.

R. N. LEVENE,
Publications Committee.



Kodachrome leader strips for each member of the St. Paul Amateur Movie Club were made this summer by Leocy Harmon, L. C. Jefferson, and John Steen (left to right). The leaders were distributed at the second September meeting of the club.

INDIA'S FILM HISTORY PASSES IN REVIEW

By F. BERKO

INDIAN film production is just over twenty-five years old. There are different claims as to which was the first film produced in India, but it seems to have been either "Pundalik," produced by Narabhai Chitra, or "Harishchandra," by D. G. Phalke. Both of them seem to have been produced in 1912, and both were shown under the most primitive conditions, without any publicity, to a very indiscriminate public. But while "Pundalik" is said to have been a complete failure, for "Harishchandra" an enormous success is claimed.

Be this as it may be—and it seems very difficult indeed to ascertain the truth about many things in the Indian film industry, formerly as well as now—there is no mistake that Indian films

Indian life, so called "socials," were being produced, and served to attract the attention of a more serious public to the films as a medium of expression.

Incidentally, actresses, always difficult to acquire in India (even nowadays!), began to be recruited from higher strata of the complicated Indian social system, and in their turn again attracted a better public to the cinemas. As an added attraction to Indian audiences, well-known Indian singers and dancers could be brought before a very wide public.

The Present

Within the last five years, the quality of Indian films improved very rapidly, however, and it may be said that today the best films of the two-three leading film companies have in some respects reached the technical level of a good B-Class American picture.

Theoretically, it is perfectly well possible for many more Indian films to reach that level, and in some cases it is even surprising that it cannot be passed.

Because although a lot of work is done in India with very primitive and defunct equipment; in sheds which, with the best will in the world, cannot be called studios; and under—no Europeans and especially Americans—unmanageable conditions, there is also, on the other hand, the very latest technical equipment available and in some cases in use in this country.

The main reason for this lack of quality, apart from the language and distribution difficulties explained later, is that the public, the overwhelming majority of which is illiterate, is so indiscriminate and so easy to satisfy, that there is no urgent need to produce better films for it.

Consequently the producers, directors, writers, editors, technicians, musicians, setting-men, etc., can stay so unqualified for their jobs as, compared with their European and American counterparts, a great number of them still are at the present.

The film industry, however, has come to be the eighth largest industry in the country. As no raw film is manufac-

tured in India yet, all of the stock used has to be imported, mainly from America and Germany.

As India produces, taking the average of the last five years, about 200 feature films of roughly 14,000 feet (final version) each, annually, it is the second largest consumer of raw film in the world.

The import duties on raw and exposed film alone have grown from about \$35,000 to \$550,000 a year during the last fifteen years. It is estimated that the industry has invested about \$60,000,000. There are approximately 75 producing companies in India, with Bombay, Calcutta, Poona, Madras, and Kolhapur as their centers.

As an expenditure of about \$35,000 can be estimated for each of the \$200 feature films produced annually, one can count that about \$7,000,000 is spent annually on production. About 40,000 people derive their income directly from the industry.

Short Films

While feature films have considerably improved in quality, if not increased numerically, during the last years it must not be forgotten that one film today may cost anything from 100 to 10,000 times as much as it cost twenty or even ten years ago!

"Shorts" have not done either, so that while there were in 1927 c. 6, 1181 foreign shorts, including newsreels, to 265 foreign feature films, the shorts being of a fairly good quality, on the whole, there were only 64 Indian shorts to 189 feature films, and these shorts were practically without exception of a very poor quality.

As short films, especially of the documentary type as produced in England by the former G. P. O. unit, Realist Films; the films for the Gas Light and Coke Company, etc., and in America the Government-produced films of Pare Lorentz, are of a very high value in every respect, it is natural to ask for the reason for the regrettable fact that India should lag behind so much.

The answer is that apart from the fact that they can hardly ever bring big money, and hence are an uninteresting proposition to most of the men backing film companies, it will easily be seen that there is not the slightest possibility of development along these lines in this country as long as the length of the feature films is not restricted by law.

With films running for 2½ hours and more, it is not possible to include proper newsreels or documentaries in a schedule of three shows a day in the time from 2 p.m. or even 5.30 p.m. onward.

R. Distribution

This, of course, refers only to cinemas showing Indian films. The number of cinemas has greatly increased with the last few years, and there are now about 1000, in addition to about 500 traveling cinemas.

Out of the number of permanent houses, about 54 per cent show Indian

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films only; about 27 per cent show both Indian and foreign films, while the remaining 19 per cent show foreign films only.

While there are only about twelve or fifteen distributors, the majority representing American, the rest English producers, who supply roughly the 466 cinemas showing foreign films, the state of affairs is much more complicated where Indian films and the ca. 250 distributors handling them are concerned.

The lines differ along which these men or firms distributing Indian films work. Some are sponsored by men with large incomes who back the production of certain films directly or indirectly. Usually, though, it may be said that the exploitation rights are either bought outright, by lump sums, or more frequently acquired on a percentage basis of about 12 to 15 per cent up to a fixed remuneration, and thence on a 50-50 basis.

But conditions are frequently such that the producers, in these cases, not only have to produce their films, but will also have to make sure of a run of at least six weeks at the first showing of their pictures, in order to secure a good distribution. For this reason many big producers have either their own first-run cinemas or the lease of cinemas for the first showing of their new films, and furthermore have to try whatever they can to attract good audiences to the cinemas and to get as good a publicity as possible.

This last factor, by the way, apart from some other reasons, contributes heavily to the situation that there is an absence of honest film criticism to be found in India; there are few newspapers or magazines which by various means such as being given advertisement space, etc., cannot be "influenced."

First Run Important

To continue: Supposing, then, that the picture runs for the required time, or more—and India is the country where films may run to anything up to one year—it is certain to be a success and good returns are assured. If it fails to draw, however, the producer will have to look out for a distributor, and will have to take the best offer he can get.

Hence, in order to avoid such risks, many producers try to obtain a contract with some distributor (based upon the latter's knowledge of previous successes of the producer, or upon confidence in his capacities, staff, stars, etc.), by which the distributor, contributing toward the production costs, obtains the exploitation rights on certain prearranged terms.

The distributors, in their turn, are, of course, again linked up with a certain chain of cinemas in their respective territories, as so to be able to enter into such contracts.

Arrangements of the kind just described which, by the way, are about the nearest approach to the English and American "black-booking" system, have certain obvious advantages as well as

drawbacks for the producers, as has the "time-booking" system explained further above.

If to the various difficulties with which both producers and distributors are confronted, the one of languages is added (India has about 222 vernaculars and,

for film purposes, has to be divided into roughly four big language areas), it is easy to see that the Indian film industry cannot yet be as developed, organized, settled, stable, and satisfactory as is desirable, and as it is hoped to become in a not too distant future.

IN AUSTRALIA'S CONTEST 22 FILMS ARE ENTERED

SOME cine camera manufacturers advise intending buyers to purchase a movie camera and express their personality. To the prospective buyer this suggestion may appear a little exaggerated, but its truth was vividly proved to members of the Australian Amateur Cine Society who viewed the prize winning and highly commended films in the first All Australian Shorlock Gold Cup Competition.

The cup and a photographic order for £10 was awarded to "Coast Town," a 16mm. monochromatic film produced by Mr. B. Lowe. It is a deliberate, slow moving film which has caught the true atmosphere of a simple Australian fishing town.

There was no attempt at glamorizing local people. They went about their daily tasks untroubled of the camera, but with that wholesome countenance to be seen only in people who live far away from that state we city dwellers know as modern life. Bob Lowe's friends could expect such a film from him, quiet, dignified and typically Australian.

The second prize was awarded to "The Zoo," a Kodachrome film produced by L. Seleten, who expressed a colorful personality with sincere love for his family. They are shown enjoying a day at Torrens Park. This picture is typical of the producer, but suffers from the same fault as most Kodachrome films in that it needs cutting, but might be re-edited into a first prize winner.

Three years ago Frank Brooks thought he was giving too much time to amateur theatricals, gave them up and bought a movie camera. The first picture he made, "What a Day," was his third prize and brings with it a whiff of the stage.

The story centers around a day spent on an Australian beach by about a dozen people. In the film is a Hero, Heroine, Villain (with Mack mouthache) and a druck.

The story flows smoothly to a happy ending and considering it was the producer's first film is a good effort, but mark you! the movie bug bit harder than its contemporary!

"Feathered Features," by Foster Stubbis, was placed fourth. It is a bird story of one of nature's gayest creatures, the butcher bird, which is shown attacking the camera man as he erects a remote control camera to film its nesting period. This film was taken by a method-

ical mechanical minded person with plenty of patience and care for detail.

These are only four of the pictures which reflected the character of the person who made them. The films were publicly screened in Sydney on July 24 last.

Twenty-two films were entered from various states of Australia and to use the words of one of the judges "Not one bad film among them."

The cup was presented to the Australian Amateur Cine Society for National Competition, with the stipulation that all films must be exposed in Australia. The reason behind this was that the donor was anxious to have a few typical Australian films sent overseas each year for International competition.

Special prizes were awarded to the South Australian Amateur Cine Society for its comedy "Cleaning Up," as well as to Mr. Alford of the Victorian Amateur Cine Society for his photoplay, "Lunch Time."

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GREATEST OF ALL

IN the fifty years since Eastman supplied the film for the world's first movies, there have been many great Kodak emulsions designed especially for the motion picture industry. . . . Greatest of all are Eastman Plus-X, Super-XX, and Background-X . . . today's ruling favorites in the studio and on location. Eastman Kodak Company, Rochester, N. Y. (J. E. Brulatour, Inc., Distributors, Fort Lee, Chicago, Hollywood.)

EASTMAN

PLUS-X

for general studio use

SUPER-XX

for all difficult shots

BACKGROUND-X

for backgrounds and general exterior work

DENSITOMETRY AND ITS APPLICATION TO MOTION PICTURE LABORATORY PRACTICE

By EMERY HUSE and GORDON CHAMBERS

Motion Picture Film Department Eastman Kodak Company,
Hollywood, California

In Three Articles—Article II

DENSITOMETERS are of two general types, visual and physical.

The human eye is used with the visual instruments to compare the light passing through the material being measured against some standard by means of a photometric field. Provision is made for varying the amount of light in either one side or the other of the photometric field to restore the brightness balance after a density has been introduced into one field. The adjustment required to restore this balance is a measure of the density. Physical densitometers employ some light sensitive material to convert the light to electrical energy which can be measured in turn by some form of meter. Densitometers of each of these types are in use in motion picture laboratories at present, the visual ones being more common. Of the latter, only two kinds are available on the American market, so far as the authors are aware, one of the polarization type and the other of the balancing wedge type.

The physical densitometers also divide themselves into two types. In one kind the density is determined by the deflection of a meter measuring the sensitive cell output. In the other the introduction of the density to be measured is offset either electrically or optically to restore the balance. This is representative of the null type.

At the present time the commercial availability of the physical instruments is limited, many of these in use in Hollywood having been constructed by the users. Each of the various kinds of densitometers will be discussed separately and typical examples described.

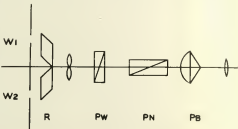
B. Visual Densitometers

1. The Polarization Photometer

In Figure 2 is shown in schematic form the optical system of a typical polarization photometer. The photometer head itself is usually mounted over an evenly illuminated pot opal glass as that equal amounts of light enter the two windows or openings in the nose-piece, W1 and W2. After passing through the rhomb, R, whose purpose is to increase the separation of the two measuring fields, the beams from the two openings are polarized in mutually perpendicular planes by the Wollaston prism, PW. These two plane polarized beams illuminate the two halves of the biprism, PB, after passing through the Nicol prism, PN. If the beams enter-

ing the photometer are unpolarized and of equal brightness, the photometric field formed by the biprism will be uniform when the optical axis of the Nicol prism is at 45° to that of the Wollaston. When a photographic density is placed before one of the windows, the equality of brightness in the two halves of the field will be disturbed but it may be re-established by rotation of the Nicol to decrease the comparison beam to the same brightness. The angle through which the Nicol is rotated is a measure of the density of the photographic deposit.

In order that a true measure of the transmission or density may be obtained, it is necessary that the optical axes of the Wollaston and Nicol prisms be prop-



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adjustment involving a resetting of the prisms should not be undertaken by one not thoroughly familiar with the optics of the instrument involved. For more complete details concerning this type of photometer and directions for the precise adjustment of it the reader is referred to "The Principles of Optics" by Hardy and Perrin and "Photometry" by Walsh.

In Table II is shown a conversion table for determining density from the angular readings on these polarization densitometers which are provided with a scale in degrees only. It is customary in photographic practice to make all readings in that quadrant lying between 0° and 45°. In some cases the film to be measured is placed under the nosepiece of the photometer in such a way that a developed but unexposed area comes beneath the comparison window. By this means the density of the base and the emulsion for is substituted during reading. When readings are made in this manner rather than in the customary one where the comparison beam is not obstructed, proper allowance should be made in the interpretation of the results and in any attempt to correlate them with measurements made otherwise. When using motion picture films, no significant difference will be found whether the measurements are made with the emulsion toward or away from the opal glass.

Since the comparison beam is decreased in brightness by rotation of the third until the halves of the field balance, the field becomes successively darker as higher densities are measured so that the instrument should be used in a not too brightly lighted room. Care should be taken in the use of some polarization densitometers when the angle between the prisms, i.e., the scale reading, becomes less than 10° as the effect

of scattered light may become great enough to affect the readings. If a neutral density measured in the instrument having a value of approximately 1.0 is used over the comparison field when photographic densities exceeding this value are being measured and the density of the compensator added to the test density value obtained, the effect of the scattered light can be minimized and the effective density range of the instrument will be increased. In a similar manner measurements may be made on gray or colored base films by placing in the comparison field a piece of base from the same roll as the one from which the test density was made. For this purpose the emulsion should be washed from the base. Here no change need be made in the measured value as the effect is merely to discount the base color. Strictly speaking, a piece of base from which the emulsion has been washed should always be used in the comparison field even for "clear" base

such as in positive film. The error introduced by failure to do this is small, however, and because all density specifications in use today include the "clear" base, there appears to be no reason for altering current practice. In attempting to compute relative level of sound tracks on clear and colored bases this should be taken into account. Exactly the same variable density sound tracks on a clear and colored base positive would appear to have a volume level difference of about 3.6 db if no correction is made for the clear base. To compute the level difference between two track densities the following equation is used:

$$db = 20 (D_1 - D_2)$$

where D_1 and D_2 are the density values. In the case of projection prints the "projection" density values should be used. For negatives the diffuse value should be substituted in the equation and the result multiplied by the negative gamma.

(Continued on Page 473)

TABLE II

Angles 0	.1	.2	.3	.4	.5	.6	.7	.8	.9
0									
1	3.51	3.43	3.36	3.29	3.22	3.16	3.11	3.04	2.98
2	2.91	2.87	2.83	2.79	2.75	2.72	2.69	2.65	2.62
3	2.56	2.53	2.50	2.48	2.45	2.43	2.40	2.38	2.35
4	2.31	2.29	2.27	2.25	2.23	2.21	2.19	2.17	2.15
5	2.11	2.10	2.08	2.07	2.05	2.04	2.02	2.00	1.99
6	1.96	1.94	1.93	1.91	1.90	1.89	1.87	1.86	1.85
7	1.82	1.81	1.80	1.78	1.77	1.75	1.74	1.73	1.72
8	1.70	1.69	1.68	1.67	1.66	1.65	1.64	1.63	1.62
9	1.60	1.59	1.58	1.57	1.56	1.55	1.54	1.53	1.52
10	1.51	1.50	1.49	1.48	1.47	1.46	1.45	1.44	1.43
11	1.42	1.41	1.41	1.40	1.39	1.38	1.37	1.36	1.35
12	1.34	1.34	1.33	1.32	1.31	1.31	1.30	1.29	1.28
13	1.27	1.27	1.26	1.25	1.25	1.24	1.23	1.22	1.21
14	1.21	1.20	1.19	1.19	1.18	1.17	1.17	1.16	1.15
15	1.14	1.14	1.13	1.13	1.12	1.11	1.11	1.10	1.09
16	1.08	1.08	1.07	1.07	1.06	1.06	1.05	1.04	1.03
17	1.03	1.02	1.02	1.01	1.01	1.00	.99	.99	.98
18	.98	.97	.97	.96	.96	.95	.95	.94	.94
19	.93	.92	.92	.91	.91	.90	.90	.89	.89
20	.88	.87	.87	.86	.86	.85	.85	.84	.84
21	.83	.83	.82	.82	.81	.81	.80	.80	.79
22	.79	.78	.78	.77	.77	.77	.76	.76	.75
23	.74	.74	.74	.73	.73	.72	.72	.71	.71
24	.70	.70	.69	.69	.68	.68	.68	.67	.67
25	.66	.66	.65	.65	.64	.64	.64	.63	.63
26	.62	.62	.62	.61	.61	.60	.60	.59	.59
27	.58	.58	.58	.57	.57	.56	.56	.55	.55
28	.56	.54	.54	.54	.53	.53	.52	.52	.52
29	.51	.51	.51	.50	.50	.49	.49	.48	.48
30	.48	.47	.47	.47	.46	.46	.45	.45	.45
31	.44	.44	.44	.43	.43	.43	.42	.42	.41
32	.41	.41	.40	.40	.40	.39	.39	.38	.38
33	.37	.37	.37	.36	.36	.36	.35	.35	.35
34	.34	.34	.33	.33	.33	.32	.32	.32	.31
35	.31	.31	.30	.30	.30	.29	.29	.28	.28
36	.28	.27	.27	.27	.26	.26	.26	.25	.25
37	.25	.24	.24	.24	.23	.23	.22	.22	.22
38	.21	.21	.21	.20	.20	.20	.19	.19	.19
39	.18	.18	.18	.17	.17	.17	.16	.16	.16
40	.15	.15	.15	.14	.14	.14	.13	.13	.13
41	.12	.12	.12	.11	.11	.11	.10	.10	.10
42	.09	.09	.08	.08	.08	.07	.07	.06	.06
43	.06	.06	.06	.05	.05	.05	.04	.04	.03
44	.03	.03	.02	.02	.02	.01	.01	.01	.00
45	.00								

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Agfa Issuing Twin Eight Hypan Fitting All Doubles

Twin Eight Hypan, a new reversible film especially designed for use in double 8 cameras, has been added to the line of Agfa films. This new emulsion is three times faster than Agfa single 8mm. film and combines exceptionally fine grain and brilliance with very high speed.

This combination of excellent characteristics enables the taking of movies of numerous subjects, heretofore beyond the range of 8mm. cameras. In addition,

the Twin Eight Hypan film provides a balanced panchromatic color sensitivity that makes it suitable for use in daylight or artificial light, a wide latitude that minimizes exposure errors, unusual revolving power and a brilliant gradation.

Halation protection is supplied by the particularly effective coating used on other Agfa reversible films.

Made by Agfa in Binghamton, N. Y., Twin Eight Hypan Reversible is supplied in 25 foot spools containing 50 feet of 8mm. film at a list price of \$2.25, which includes processing at any authorized Agfa laboratory.

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Pacific Laboratories Has Complete 16mm. Program

The Pacific Laboratories, on the fourth floor of the Beskin Building, 1021 North Highland avenue, Hollywood, conducts complete 16mm. film service. This includes a sound track. The company was moved to create these facilities to respond to a demand for specialization in sub-standard work, with recording directly on 16mm. film.

A twelve-task 16mm. developer, with a capacity of 20,000 feet a day, has been built from plans specially drawn. Production of sound tracks, composite prints, duplicate negatives, editing, etc., are also part of the service.

Cine-Kodak Outdoor Guide

Exposure data for all Cine-Kodak films, 8mm. and 16mm., black-and-white and Kodachrome, are provided in a new Cine-Kodak Outdoor Guide retelling at 10 cents. One dial adjustment yields a simultaneous exposure reading for all the films, and for light, average and dark subjects with Kodachrome. Four daylight conditions (from "bright sun" to "cloudy dull") and four angles of lighting (back, side, flat front, and open shade) are covered.

Norman-Willetts' Photo Supplies

Photo Supplies, a book on cameras, films, paper, chemicals and sundries, has been issued by the Norman-Willetts Camera Center, 230 West Washington street, Chicago. The book is 6 by 9 inches, contains 116 pages, and is profusely illustrated. It is a well-polished book, and being set in small type as a rule carries a lot of matter attractively presented.

Quality for the Amateur Cinesmith

(Continued from Page 453)



K 2: 118 gives satisfactory contrast of clouds against a blue sky. Yellows will appear almost white.



No filter used.

To arrive at the increase of exposure needed when a colored filter is used, it is necessary to square the Y number which would be used normally, divide that by the filter factor, then take the square root of this figure, e.g.:

$$\frac{16 \times 16 = 252}{2} = \frac{126}{1}$$

The square root of 126 is approximately 11. Thus if a two times filter is used on a scene that would normally require an exposure of 16, then the lens would have to be opened to 11. While this appears simple, when small stops are used, the problem is more involved when larger apertures are needed, e.g. An F 4 scene photographed with a two times filter requires a stop of F 2.8.



Give Spectators a Thrill!

"Stay-at-home" spectators who watch The Big Game via your movies or projected stills will get a real thrill out of your pictures when you show them on a Da-Lite Glass-Beaded Screen. It's greater light reflective qualities make every shot appear brighter, sharper, clearer and more real. The model shown above, priced from \$2.00* up, may be set up on a table or hung against a wall. Other styles include hanging screens from \$7.50* up and the popular Challenger with tripod pivotally attached to the case, from \$12.50* up. Ask your dealer for a demonstration! You too will agree "Da-Lite is the way!" Write for literature and name of nearest dealer.

**Prices slightly higher on Pacific Coast*



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GLASS-BEADED SCREENS

DA-LITE SCREEN CO., INC.

Dept. 10AC, 2723 N. Crawford Ave., Chicago, Ill.

This chart will be helpful if a quick answer is needed for a filter factor problem. It also shows the increase of exposure necessary when the normal speed of a camera is varied.

On the left of Filter Test Chart are colored strips of paper. On the right are gray tones which approximately match the luminosity of each colored strip. Various filters were used to photograph this chart in daylight. The blue strip was much darker than a "sky" blue. Kodak Class "C" film was used to make the tests. This film has approximately the same color sensitivity

as all Kodak cine films except cine-Kodak 16mm. Panchromatic. In other words, the test was made with film equal in color sensitivity to super sensitive Panchromatic film, not ordinary Panchromatic film.

Aid in Vacation Films

Movie makers who take special pride in their World's Fair and vacation films of this year now have an excellent aid in preparing their footage for audience presentation in the new Beebe Edscope.

Fast Service on Football Films Given by Agfa Ansco

Following a custom which the Agfa Ansco Corporation established several years ago for the benefit of coaching staffs, Agfa 16mm. reversal laboratories will be prepared to give special service on the processing of football films during the coming season.

All of the Agfa 16mm. reversal laboratories in the United States will remain open over the week ends for processing of football films. These will be finished and returned the same day as received, thus permitting viewing of the films by the coaches and football enthusiasts within the shortest possible time after the game.

To insure quickest service, all films should be sent to the nearest processing station by parcel post special delivery, air mail, or by messenger. The films will be returned by special delivery if these hundred feet or more are involved.

Otherwise, and also for shipment by air mail, sufficient return postage should be sent along with instructions. To facilitate identification, the outside of the parcel should be marked "Football Films."

The Agfa Reversal Laboratories providing this special service include: Agfa

Ansco Corporation, 345 West 58th street, New York; Agfa Ansco Corporation, 433 East Erie street, Chicago; Agfa Ansco Corporation, 1224 South Hope street, Los Angeles; Agfa Ansco Corporation, 121 Julia street, Jacksonville, Fla.; Motion Picture Service Company, 125 Hyde street, San Francisco, and the Calvin Company, 26th and Jefferson streets, Kansas City, Mo.

Germany's First Animated Cartoon Announced in Color

Production of Germany's first animated cartoon has just been announced. Acting Commercial Attaché R. M. Stephenson, Berlin, has informed the Department of Commerce.

The animated film will be in color and will be based on a fairy-tale plot which has been especially written for the project, it is pointed out.

The forthcoming locally produced "Märchen-Trickfilm," or animated cartoon, has received very little publicity to date, the only reference to it having been a short announcement in the National Zeitung.

Production of this type of film in Germany, however, the Commerce Department report said, is noteworthy in that

only a few months ago German newspapers were commenting ironically on the success of American animated cartoon films.

In this connection one commentator wrote that "Germany has not yet found it necessary to fall back on fairy tales for our films—we still have ideas and audiences that can appreciate them."

Agfa Releases Superpan Supreme Film and Packs

Agfa Superpan Supreme, the high-speed, fine-grained, panchromatic emulsion which has been so popular among motion picture photographers and amateur camera users, is now available in roll and pack form.

Providing twice the speed of Superpan roll and pack film, which it replaces, the new Superpan Supreme brings added subject range to every photographer's equipment. In addition, the new film provides a notable improvement in fineness of grain and a better balanced color sensitivity.

Made by Agfa Ansco Corporation in Binghamton, N. Y., the new Superpan Supreme is available in all popular sizes of rolls and packs at no increase in price over Agfa Superpan formerly supplied.

Until now cartons can be supplied for all sizes, some sizes will be supplied in old-type Superpan cartons, identified, however, as the new Supreme type by a small label or the imprinted word "Supreme."

"Mr. Roosevelt. Won't You Please Run Again?" Ready

Carlson Films, of 1660 Broadway, announces the release on 16mm. sound film of the one reel musical short, "A Musical Message From Hollywood," directed by Frank Tuttle and Herbert Rubenstein, featuring Charles Furell and "The Notables" Quartet.

The picture which introduces the popular song "Mr. Roosevelt, Won't You Please Run Again?" was recently previewed with acclaim at the Young Democrats Convention in Pittsburgh, where 2000 copies of the phonograph record and sheet music were purchased by delegates. Prints of the film are available for immediate unrestricted outright sale for \$36 a reel.

Lighted with BABY KEG-LITES



An important scene from FOX Radio's "In Name Only" starring Carole Lombard, Cary Grant, Kay Francis and Helen Vinson

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NEW BOOKS

American Annual of Photography 1946.
Volume 54, American Photographic Publishing Company, 353 Newbury Street, Boston, Paper, \$1.50; cloth, \$2.25. 286 pp. 160 pp. illustrations. Edited by Frank R. Progre, FR.P.S., and Franklin J. Jordan, FR.P.S.

The fifty-fourth volume of the *American Annual of Photography* 1946 has arrived. It is worthy of its name. There are abundant illustrations, 96 pages in one group and the articles throughout the book being profusely pictured. Its opening shot is "Photography Goes Forward—A Review of a Decade of Progress," by Glenn E. Matthews. In twenty pages the writer makes interesting reading for the amateur after the rush of today or for the man who is studying history a matter of a hundred years hence.

"Much of the growth of photography, especially during the last quarter-century," says Mr. Matthews, "can be traced to research. Progress has been rapid, especially during the past ten years, which have been characterized by one authority as the panchromatic era. It has also been said that we are at the threshold of an age of color."

Corwin Black talks on "Photographic Permanence." One paragraph catches our eye: "But though there is much similarity between photography and painting there is dissimilarity as well. Ours is a split-second art throbbing with the fast tempo of now, endowing in black-and-white images the imaginative force of the camera creator. Photography has a spontaneity that is lacking in painting; an impetuosity that sweeps aside the cobwebs of premeditation."

"Yet, though we make our picture in a fraction of a second, its artistic qualities need not be inferior to any other art, but its mannerisms and rules must be free of those restrictions imposed by the slower and less spontaneous arts. We are developing our own techniques and adapting them to speedy necessities."

There are hundreds of pages of good reading. Those who contribute to it are Roland F. Beers, William S. Davis, J. M. Sudan, Laurence Dutton, J. H. Stillwagon, E. C. Dymond, Bonnie Lee, Henry A. Fowler and Lloyd E. Yarden, Alfred A. Monnet, Hans A. Erickson, Leo A. Leigh, Willard D. Morgan, Arthur Hammond, T. A. Rogers and B. L. Robertson, Charles W. Seager, J. G. Pratt, George P. Meza, E. Berg, and Frank R. Progre.

"Who's Who in Pictorial Photography 1938-39" occupies thirty pages of small type and gives a deal of information. Exhibitions listed in 1938-39 are 93, the number of exhibitors are 13,746, the number of prints hung 35,189, average number of prints per exhibitor 1,832, actual number of exhibitors 4,833, and the number hung only in one show 2866.

There are some 750 camera clubs listed as being in business.

Faster and Better 8mm Equipment

(Continued from Page 454)

same camera, loaded with either of the new films, can be used successfully with the lens stopped down to f4.

Where, with the slower film, an aperture of f2 might be needed, the man with an f3.5 lens can now load his camera with the new film, and make pictures successfully.

This means that less light—fewer lamps and smaller ones—can be used for interior picture making. It means that exterior scenes can be filmed under poorer illumination.

Better, Cheaper Pictures

And if one has ample illumination, either artificial or natural, it is now possible to stop down and get better depth and definition, rather than using the less wide nearly wide open.

The combination of these new films and the wide-angle lens will aid notably

to the flexibility of 8mm. camerawork. While they are equally applicable to both interior and exterior shooting, their most spectacular application will naturally come in interior filming.

There the wide-angle lens will prove incredibly useful, making it possible to get long-shots in rooms too small to permit such angles with the normal lens, and to film the closer angles more conveniently, and in less space, than has hitherto been possible.

The faster film—either of them—permits the use of fewer and smaller lighting units. Alternatively, it permits illuminating larger areas with the equipment already used for interior work on the slower film, and stopping down for better definition in ordinary shots with normal lighting.

The two developments together add up to the highly desirable total of better pictures, more easily obtained. The three manufacturers responsible for these improvements are to be highly congratulated on having advanced the scope of 8mm. moviemaking.

The Professional Touch to Amateur Movies

Besbee is the only house in America supplying such a wide variety of accessories for completing your personal movies. Among these are Title Makers and Title Letter Sets for "professionalizing" your films... the Effectograph which permits you to frame your pictures in 16 different effects... the Edscope for editing your films quickly and easily... and a host of other simple-to-operate items. Your pictures no longer need be explained verbally... they no longer need be ordinary.

... Besbee makes them dramatic, exciting, professional!



Besbee Universal Title Maker, for all cameras... \$14.95

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Making Photographic Record of American West Indies

Alexander Alland, the photographer who did such a splendid job with Felix Rosenburg on the book "Portrait of New York" (Macmillan), is now in St. Thomas, Virgin Islands, with Jacques Davidson, photographer son of Jo Davidson.

Their object is to make a complete photographic record of the Virgin Islands and the rest of the West Indies—gathering as much authentic data with the photographs as is possible, and, incidentally, in the hope their work will facilitate closer relationship between the United States and her colonies. They will remain on each location as long as it is necessary to gather sufficient material.

They are equipped with five cameras—Lushoff, Graflex, Contax, Bell and Howell movie camera and a Rolleiflex.

A diversified set of lenses enable them to meet any photographic situation. Camera enthusiasts would be interested in knowing that Mr. Alland has designed a completely equipped portable darkroom, which enables them to see a day's "take" before moving on to another location.

Exports of American Films Show a Decrease for 1939

Preliminary figures for the first six months of 1939 for American exports of motion picture films, both negative and positive, show a decrease of 8,616,745 linear feet as compared with the first six months of 1938, according to data compiled by Nathan B. Golden.

Motion picture cameras of standard, or 35 M.M. gauge, show a decrease for the first six months period under discussion; 78 of such cameras, with a value of \$22,864, were exported as against 120 such cameras, valued at \$67,268 for the first six months of 1938.

Exports of sub-standard silent motion picture projectors totaled 2,509, valued at \$220,845 and sub-standard sound projectors, listed for the first time this year, totaled 918 with a value of \$133,271. Total exports of both silent and sound sub-standard gauge during the first six months of 1939 were 12,247 with a value of \$361,883.

Sub-standard camera exports for the January to June period amounted to 10,484, valued at \$282,136 as compared with 15,993 cameras, valued at \$455,288 for the same period during 1938.

Building Novel Projection Stand

(Continued from Page 171)

for arranging the reels to be projected for an evening's program.

The pilot lights make it unnecessary to switch on the room lights between reels, and the four double outlets provide (after devoting two to the invaluable pilot lights) six points at which not only your own movie and slide projectors may be connected, but also any that your friends may bring to handle film standards your own equipment doesn't take.

The master switch eliminates all risk of going off and leaving your projector circuits "hot"; having the pilot lights in this circuit gives a very good check as to whether the line to the projector is on or off.

Finally comes the matter of cost. Where a commercially made projector stand runs into a matter of anything from fifteen or twenty dollars up, mine cost about four dollars. Lumber prices vary in different districts, of course; but my lumber cost less than \$3, and the electrical equipment about \$1.

The only other cost was an afternoon of good exercise with saw and hammer, and a thumb that gave evidence I couldn't always hit the nail on the head!

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Densitometry and Its Application

(Continued from Page 469)

2. The Balanced Wedge Photometer.

The Eastman Densitometer is of the wedge comparison type where the density to be determined is compared, by means of a photometric field, with a previously calibrated wedge. A schematic diagram of the instrument is shown in Figure 3. Light from the single source, A, is reflected by the mirrors B and D through a ground glass at E to a sheet of white optical glass at F where a small portion is reflected downward to the mirror G, the remainder of the light passing through F where it is lost. This illumination falling on the mirror is the comparison beam. From the same light source a beam passes through the wedge W and the opal glass at H and enters through the small opening in the mirror G, at a point in the center where the silver coating has been removed in a circle having a diameter of 25 mils. This mirror, the outer portion illuminated by the comparison beam with a small concentric spot of transmitted light in the center is the photometric field which is viewed through the eyepiece J. The lamp used for this densitometer is the Mazda No. 1124, a double contact base, 6-8 volt, RP-11 bulb, which is operated at 2.5 amperes through a transformer. The lamp should be positioned so that the plane of the filament is parallel to the wedge.

The wedge used in this instrument is a photographic one consisting of a developed plate having a density range from 0.0 to 5.0 in about 215" of its circumference. The wedge is pivoted in its center, about which it may be rotated freely. When no film is in place over the opal glass H, a density of 3.0 is required in the wedge immediately under H to establish a brightness balance between the two parts of the photometric field. Any density which is inserted in the beam may be measured by subtracting enough of the wedge density by rotation to re-establish the brightness balance between the two fields. This results in a constant field brightness at the balance point. When a density of 1.0 is in the test field all of the wedge density would be removed, i.e., to a density of 0.0 in order to balance the photometric field. As the two fields are supplied simultaneously from the same lamp, variations in the lamp current are of no consequence. This cancellation effect is true of the polarization type also, the two fields of which are normally illuminated by the same lamp.

While the Eastman Densitometer has been described fully by Copstaff and Purdy, it is worthwhile making a short review here of the optical principles involved in the photometric field because of their bearing on the performance of the instrument. In Figure 4 is shown a

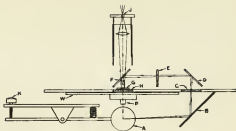


Figure 3

diagram of the optical head. The comparison beam entering from the right is reflected downward by the optical glass F to the mirror G. The opening in the mirror will reflect a very small portion of the light as compared with

the silvered surface. If now a mirror were placed in the position normally occupied by the density, completely obstructing the beam through the wedge, a balance would nevertheless be established.

(Continued on Page 473)

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Agfa Issues New Texture
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Photographers who like to see their prints finished in the finest professional manner with a light texture printed in throughout the field of the photograph and a softened "etching-edge" between picture area and borders will be interested in the new texture screens and border mask just announced by Agfa Ansox Corporation.

The new Agfa texture screens are available in four types, each of which lends an attractive and distinctive appearance to the finished print. Three of the screens are interesting fabric textures, identified by the names Satin, Oxford and Homespun, while the fourth is an unusual, irregular pattern named Ribble.

The Texture Screens measure 8x10 inches in size and can be used for both contact and projection printing, being placed in immediate contact with the photographic paper during exposure. Special precautions have been taken in the preparation of these Screens to permit the use of the same contrast grade of photographic paper that is employed when prints are made without a Texture Screen.

The Agfa border mask, which has also been announced, is an 11 by 14 inch negative especially designed for use with the texture screens. The border mask provides a 7% by 2% inch field with an attractive staining-edge border.

Home Movies Need Sound

(Continued from Page 441)

judging recordings solely by title, and builds a library which he taps each time he shoots a new film.

Another spends his noon hours prowling about in phonograph record shops and his evenings listening particularly to recorded programs of local radio stations. Whenever he hears a tune that tickles his fancy he checks bills and recording with the station's musical director and makes an investment.

Best suggestion of all perhaps is to invite your musically-minded friends to sit in on a preview of the film and offer tips on the best types of background music. Even at that, each person will probably offer different recommendations, for individual tastes and preferences are bound to vary.

Parades call for lively band music, with plenty of drum. You're sure of

that. Likewise, carnival or circus scenes might fit well with Victor's "Barnum & Bailey's Favorite March."

Posterior and wildlife staff takes in a wide assortment of recordings—"Battle of Spring," "Afternoon of a Faun," "Entrance of the Little Faun," "The Swan," "To Spring," "Peer Gynt," and many others.

Mountain scenes deserve lofty, even religious music, such as "Rock of Ages" and "Largo." A reel of stunts in color might feature for background music—"When Day Is Done," "At Sundown," "Perfect Day" etc.

Two Ways to Find 'Em

In some instances, travelogs particularly, music and sound effects are not enough, and some dialog may be necessary to enlighten audiences.

There are two ways in which this can be introduced—ad-libbing direct through a microphone hooked up with the amplifier, or playing back the voice actually recorded on disc. The latter form is advantageous, for if the dialog is recorded as a series of cuts, these can be turntable-played when keyed to certain scenes in the film.

When talking over a microphone or playing a voice recording, the background music should always be softened considerably, and when the dialog is almost over the music should be brought back to its former volume.

For your audience's sake, remember always to soft-pedal your sound accompaniment rather than play it up loud. Your film presentation will seem all the more effective if every minor detail bears close watching.

Indeed, the fascination of attempting to set your own films to music will grow on you until finally you'll begin to wonder which threatens you with the most work and fun—movie making itself or the business of dubbing in sound.

[ED. NOTE: George Culbertsen, 4068 Newton Avenue South, Minneapolis whose sound synchronizing work is described in this article, has offered to answer any queries on sound from readers of American Cinematographer. Make your questions specific, and be sure to inclose a stamped, return addressed envelope for reply.]

Forming Amateur Production Units

(Continued from Page 441)

Now you have an ally! You have a man capable of discernment in the selection of story. Theoretically he also is a cinematographer. In a surprisingly short time he will assimilate much of your knowledge.

Not a great deal should restrict your choice of story. Originals are best and safest. If you insist upon borrowing from literature, take care that you do not infringe on someone's copyright.

Picking a Play

Should you decide to use a one or three act play, first contact whichever publishing house holds the copyright. Such agencies often are extremely generous in their terms for the release of amateur production rights.

We still strongly advise against the use of royalty plays. Remember, they have been done already by professionals whose performances you cannot exactly hope to eclipse. Original material can, for instance, be documentary. Your film can be kept local, can possess historical and educational interest.

In selecting a story, always keep in mind these considerations which will govern its magnitude. How well equipped are you? Have you lighting facilities

[illegible]

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adequate for spacious interior shots? Does your cast handle easily?

We submit that your first scenario picture should be a short, a reel in length. It will introduce you to most of the problems later to be met on a larger scale.

Though the question of story taboos falls within the writer's province, both of you be reminded at all times that the film should provide constructive entertainment. Some subject matter is not only in poor taste, but lacks in entertainment value.

We believe insanity is one of these, the morbid theme another. Either may constitute art; the subject is controversial. But when there is so much material of absorbing interest from which to draw, why risk attempting complexities bigger than you can handle?

If Comedy Be Simple

Stories with the accent on comedy, even light love stories, are amusing and safe experimental grounds. In these, avoid too complex situations involving too many people.

For example, if the author must prove his worth to his ladylove's inebriate, evict and skeptical papa, let the simplest comic aspects of the situation dominate your film. Keep the couple's affections discreetly in the background, perhaps highlighting them with humor.

When you plan your more ambitious picture, line up dependable people.

Then, by the way, in your third preliminary. Naturally, your chief concern will be your actors. If these are really capable, don't fret if they're not photographic. The writer, or writer-director, will have something to say about these.

He may prefer people without previous dramatic experience; better results often are achieved with such folk. On the other hand, he may lead you directly to the local community theater. A fine source for talent, at any time.

Castling to type is a good idea. Others who enjoy playing are best choices for character parts, unless some young man or woman you know is adept at make-up and histrionics.

Eliminate Cost Hazard

Decide first what kinds of people you need, having in mind the part you are casting. You may be saddled, more or less, with willing ones without talent or a given direction. Details of production will be assigned them. Usually they will tackle their assignments with hearty enthusiasm. Let them seek locations, have charge of personal properties, dress

sets, handle the lights. They can be kept busy.

As your company expands, so will the variety of your personnel increase. If necessary, double up on assignments. One of our feminine leads has been script girl (a very important job); she also designs costumes and makes them. We're fortunate! She is good-looking and an excellent actress.

It is comparatively easy to match personnel to production needs and inversely to make concessions for the sake of company morale.

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So far we have spoken of the filming of a scenario picture with the assumption that it might be the project of one lone amateur cinematographer.

To omit mention of cooperative production by and among cinematography clubs would be withholding the very policy we wish most to encourage! Here, concerted, cooperative effort aids in the elimination of one of the most formidable hazards confronting the amateur. Cost!

The annual production of a feature-length scenario picture by a club, subscribed to in part by every member, would contribute a great deal to amateur cinematography.

Is there any reason, then, why every cinematographers' club should not admit writers, actors, artists and carpenters to membership as well as musician hobbyists?

Club Form Group

The community theater has done much to polish the public taste for better legitimate drama. A community cinematographers' club, similarly organized, can evoke greater public appreciation of good film fare.

A community cinematographers' club already organized, but showing pictures only on an individual basis, could by vote decide to form a group for the production of more important pictures at stated periods. It could be every three months, six months or annually.

Whether the production unit be organized by a single individual or a club, rigid adherence to a carefully planned production schedule will recommend itself.

This becomes most apparent when shooting actually has begun. Rules and regulations, though confining, are absolutely essential to the successful completion of a picture.

In a written constitution to prospective members of a local production unit, the organizer expressed his boundless gratitude for the time and effort to which they had dedicated themselves.

In the next sentence he reminded them that, having signified their willingness to cooperate, be expected nothing but cooperation and the strict observance of about ten rules, rules governing punctuality, responsibility, liability, and some more.

If amateur cinematographers and those whose hobbies lie in related fields demonstrate an interest in these remarks we will answer queries addressed to us, care of this publication, to the best of our ability.

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Densitometry and Its Application

(Continued from Page 475)

lined as the two mirror surfaces would appear to be practically continuous. Naturally, therefore, the surface to be measured should be diffuse. Films should be placed under the head with the emulsion side up, as the glossy surface of the base would appreciably alter the amount of light in the mirror opening. A certain amount of reflected light from the comparison beam would be added to the transmitted light. To establish the balance, a darker portion of the wedge would be needed so that the resulting density value would be less. The following is a comparison of readings obtained by the two methods on the same strip:

Emulsion up . 2.90 2.42 1.47 .83 .36
Emulsion down 2.86 2.37 1.44 .80 .14

This point has been discussed at some length because it has been found that discrepancies between readings in various laboratories have been due to one of the measurements being made with the film improperly positioned. The densitometers have been calibrated with the emulsion side of the film up toward the head.

The zero setting of the instrument is adjusted by a knob on a ring at the upper left end of the housing which moves the lamp to and from the wedge. This movement naturally affects the amount of light in the measuring beam when the lamp is in the common beam as can be seen by reference to Figure 3. When the wedge is installed it is desirable that the lamp be away from the wedge, near the end of the adjustment, in order to avoid overheating of the wedge, should the lamp be left on inadvertently. A supplementary control over the lamp position is the ascent of neutral density placed in the common beam at E, Figure 3. In addition to this neutral filter there is a special light green filter at this point which serves to give a good color balance between the two fields by correcting for the difference occasioned by the dissimilarity in their paths.

Because of the fact that the mirror surface is separated by a finite distance from the evaporation surface and further that the protective cover of black paper on the bottom of the mirror has an opening of necessity larger than that in the mirror, it is not possible to measure correctly the density of half and quarter-width variable area eused track. A special mirror has been made available recently for this purpose having an opening in the mirror only 0.12 inches in diameter rather than the standard of .325. Due to the leak light which comes around the track and enters the mirror the density value obtained would be too low. Since this can amount to as much as 0.15 in some cases where measurements are made on adjacent areas on the same track, one part full width and one quarter-width, the possible error is serious.

One solution to this problem is the use of a baffle made of shiny stock having an aperture 0.03 inches in diameter directly over the spot glass. When the track to be measured is placed over this no light is allowed to leak around it. The apertures in the mirror and baffle must be carefully centered with respect to each other. The use of such a baffle has been found satisfactory for half-width track (0.038 inches) but a smaller one for quarter-width track has been found unsatisfactory.

The black paper mask protecting the mirror must be kept in good condition so enlargement of the opening in it will affect the accuracy. The measurement of wet film is a frequent cause of deterioration of this mask which can be prevented by covering the mask with a thin sheet of Kodakoid or Kodapak. Under such circumstances the zero setting should be made with the sheet in place. Failure to protect the mirror from moisture often results in separation of the cover glass, necessitating replacement of the whole baseplate.

The wedges used in this instrument are individually calibrated from a series of master densities on positive film which were in turn calibrated on an instrument whose operation is based upon the inverse square law. This latter densitometer has been described by Capatzen and Greene¹. The intermediate points on the scale are interpolated. The scale is marked in .02 units from 0.0 to 3.6. Because it is secondary in nature, having been calibrated against a primary standard, the density values obtained by its use must be considered to have a tolerance of $\pm .01$ when the instrument is in good condition and is used by a skilled observer. Discrepancies of the same order may be found between the results obtained by several observers, a condition

tion true of all visual instruments. Obviously these errors are increased by deterioration of the instrument parts themselves. The condition of the instrument may be checked at any time by reading a series of densities over the range which has been calibrated on the inverse square law densitometer.

Recently a variation of this transmission type densitometer has been marketed, principally for use in the field of graphic arts, which can be used for reflection measurements as well. To facilitate the measurement of colored inks and dyes or inks used for color separation printing the eyepiece is equipped with yellow, magenta, and blue-green filters. The area scanned by this instrument for either transmission or reflection measurements is four millimeters in diameter. This combination densitometer has only a limited application to the motion picture field.

¹Hardy, Arthur C., and Perrin, Fred H.: McGraw Hill Book Co., New York, 1932.

*Walsh, John W. T.: D. Van Nostrand Co., New York, 1924.

¹Capriaff, J. G., and Purdy, Roy A.: Trans. S.M.P.E., 22: 477, 1937.

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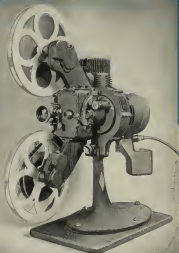
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